
NASA
Mark Vande Hei
NASA Astronaut

1
00:00:15,990 --> 00:00:14,709
we have the best laboratory ever

2
00:00:33,990 --> 00:00:16,000
invented in the form of the

3
00:00:34,000 --> 00:00:40,549
new concept in how we go to space

4
00:00:45,270 --> 00:00:43,030
we are counting more on the u.s private

5
00:01:36,230 --> 00:00:45,280
industry to take over things like

6
00:01:41,670 --> 00:01:37,510
the space launch system the

7
00:01:47,030 --> 00:01:44,230
we know what we need to go beyond low

8
00:01:49,429 --> 00:01:47,040
earth orbit we need a big rocket to

9
00:01:51,749 --> 00:01:49,439
carry our cargo up there and this rocket

10
00:01:54,149 --> 00:01:51,759
is is the way to go do that so that we

11
00:01:56,230 --> 00:01:54,159
can go to the same destinations we have

12
00:01:58,550 --> 00:01:56,240
known that humanity has always wanted to

13
00:01:59,429 --> 00:01:58,560

explore to an asteroid for the first

14
00:02:01,190 --> 00:01:59,439
time

15
00:02:03,990 --> 00:02:01,200
back to the moon and certainly

16
00:02:39,910 --> 00:02:04,000
ultimately to the dusty red surface of

17
00:02:45,270 --> 00:02:43,670
the future looks amazing i'm excited to

18
00:02:46,949 --> 00:02:45,280
find out what

19
00:02:54,229 --> 00:02:46,959
i can't even imagine yet this

20
00:02:57,589 --> 00:02:55,830
we've got to take these promises and

21
00:02:59,270 --> 00:02:57,599
we've got to be able to deliver i'm

22
00:03:22,390 --> 00:02:59,280
confident we can do that the future is

23
00:03:26,229 --> 00:03:23,990
good afternoon everybody and welcome to

24
00:03:28,070 --> 00:03:26,239
nasa headquarters in washington d.c my

25
00:03:30,229 --> 00:03:28,080
name is mike curie i'm with nasa's

26
00:03:33,509 --> 00:03:30,239
office of communication and we're here

27
00:03:35,589 --> 00:03:33,519
today for a very exciting ceremony to

28
00:03:37,830 --> 00:03:35,599
introduce to you the process for

29
00:03:40,070 --> 00:03:37,840
selecting nasa's next class of

30
00:03:42,630 --> 00:03:40,080
astronauts and before we get started

31
00:03:45,030 --> 00:03:42,640
with that we would like to recognize

32
00:03:47,110 --> 00:03:45,040
a number of nasa education guests who

33
00:03:49,589 --> 00:03:47,120
are here in the auditorium with us today

34
00:03:52,309 --> 00:03:49,599
we have five teachers and 20 students in

35
00:03:54,630 --> 00:03:52,319
the sixth seventh and eighth grade from

36
00:03:56,789 --> 00:03:54,640
whittier education campus

37
00:03:58,470 --> 00:03:56,799
which is a dc summer of innovation

38
00:04:00,710 --> 00:03:58,480

school in partnership with the goddard

39
00:04:05,750 --> 00:04:00,720
space flight center thank you all for

40
00:04:09,429 --> 00:04:07,350
we also would like to welcome nine

41
00:04:12,149 --> 00:04:09,439
national science foundation albert

42
00:04:14,789 --> 00:04:12,159
einstein distinguished educator fellows

43
00:04:17,110 --> 00:04:14,799
who are here today along with more than

44
00:04:23,749 --> 00:04:17,120
20 graduate level student ambassadors

45
00:04:26,870 --> 00:04:25,510
this is a great day for nasa we are

46
00:04:29,189 --> 00:04:26,880
pleased to be joined by nasa

47
00:04:32,230 --> 00:04:29,199
administrator charles bolden who is here

48
00:04:35,350 --> 00:04:32,240
on stage and will be uh helping us to

49
00:04:37,510 --> 00:04:35,360
welcome in the this newly graduated 2009

50
00:04:39,430 --> 00:04:37,520
class that we'll be introducing and also

51
00:04:42,790 --> 00:04:39,440
uh to tell you how you can become an

52
00:04:44,550 --> 00:04:42,800
astronaut seated next to charlie we have

53
00:04:47,270 --> 00:04:44,560
the assistant administrator for human

54
00:04:50,310 --> 00:04:47,280
capital jerry buchholz

55
00:04:54,070 --> 00:04:50,320
and we have nasa's uh flight

56
00:04:56,550 --> 00:04:54,080
crew operations director janet cavandi

57
00:04:59,430 --> 00:04:56,560
and then from the 2009 astronaut class

58
00:05:02,070 --> 00:04:59,440
serena anand

59
00:05:04,150 --> 00:05:02,080
jel lindgren

60
00:05:06,950 --> 00:05:04,160
kate rubens

61
00:05:10,070 --> 00:05:06,960
scott tingle

62
00:05:15,029 --> 00:05:10,080
and mark vande high

63
00:05:18,790 --> 00:05:16,550

so without any further ado i'm going to

64
00:05:20,950 --> 00:05:18,800
turn things over to uh

65
00:05:22,870 --> 00:05:20,960
the administrator to uh to get the

66
00:05:25,430 --> 00:05:22,880
proceedings charlie thank you thank you

67
00:05:26,950 --> 00:05:25,440
thank you very much um thanks very much

68
00:05:27,990 --> 00:05:26,960
for everybody coming out this afternoon

69
00:05:29,590 --> 00:05:28,000
it's um

70
00:05:32,390 --> 00:05:29,600
it's like every day at nasa every day

71
00:05:34,150 --> 00:05:32,400
here is a great day at least for me so

72
00:05:35,830 --> 00:05:34,160
hopefully if you talk to nasa employees

73
00:05:37,350 --> 00:05:35,840
they'll tell you the same thing

74
00:05:39,350 --> 00:05:37,360
i want to welcome everybody to the

75
00:05:41,189 --> 00:05:39,360
future of nasa um

76
00:05:43,350 --> 00:05:41,199
they're exciting time these are exciting

77
00:05:45,990 --> 00:05:43,360
times here at nasa and this is an

78
00:05:47,909 --> 00:05:46,000
especially an especially exciting day

79
00:05:49,510 --> 00:05:47,919
i hope everybody enjoyed the video as

80
00:05:51,029 --> 00:05:49,520
did i was the first time i saw it were

81
00:05:53,189 --> 00:05:51,039
you all excited

82
00:05:54,870 --> 00:05:53,199
any of you see yourselves in any of that

83
00:05:56,469 --> 00:05:54,880
in the future

84
00:06:00,469 --> 00:05:56,479
um

85
00:06:05,670 --> 00:06:03,670
okay all right well it really conveys

86
00:06:07,990 --> 00:06:05,680
the vision and the vitality with which

87
00:06:09,270 --> 00:06:08,000
we're talking about the next leap that

88
00:06:11,749 --> 00:06:09,280

we're going to take in human space

89
00:06:13,590 --> 00:06:11,759
flight for 50 years now american

90
00:06:15,830 --> 00:06:13,600
astronauts have led the exploration of

91
00:06:17,270 --> 00:06:15,840
our solar system and expanded our

92
00:06:18,790 --> 00:06:17,280
knowledge about what it takes to live

93
00:06:20,870 --> 00:06:18,800
and work in space

94
00:06:22,950 --> 00:06:20,880
today you're going to get a glimpse of

95
00:06:24,230 --> 00:06:22,960
why that will remain true for the next

96
00:06:25,990 --> 00:06:24,240
half century

97
00:06:28,710 --> 00:06:26,000
you'll not only get to meet members of

98
00:06:31,270 --> 00:06:28,720
the of nasa's latest class of graduates

99
00:06:33,430 --> 00:06:31,280
from the astronaut candidate program but

100
00:06:35,990 --> 00:06:33,440
you'll also learn how you can join their

101
00:06:38,070 --> 00:06:36,000
ranks as we begin recruitment for the

102
00:06:40,230 --> 00:06:38,080
class of 2013.

103
00:06:41,909 --> 00:06:40,240
in a few minutes you'll learn more about

104
00:06:44,309 --> 00:06:41,919
the recruitment process from nasa's

105
00:06:47,029 --> 00:06:44,319
director of flight crew operations dr

106
00:06:49,589 --> 00:06:47,039
janet cavandi she's not just janet but

107
00:06:52,629 --> 00:06:49,599
dr cavandi is also a multi-flown

108
00:06:53,990 --> 00:06:52,639
astronaut and uh head of nasa's flight

109
00:06:55,589 --> 00:06:54,000
crew operations directorate at the

110
00:06:57,029 --> 00:06:55,599
johnson space center

111
00:06:59,029 --> 00:06:57,039
uh you're going to hear from one of the

112
00:07:02,230 --> 00:06:59,039
newest astronauts serena ahnan and

113
00:07:03,589 --> 00:07:02,240

nasa's chief of human capital um

114
00:07:05,510 --> 00:07:03,599
assistant administrator for human

115
00:07:07,510 --> 00:07:05,520
capital management jerry buchholz who

116
00:07:09,830 --> 00:07:07,520
was sitting right to my left let me say

117
00:07:11,830 --> 00:07:09,840
how pleased i am that we're partnering

118
00:07:13,350 --> 00:07:11,840
with the office of personnel management

119
00:07:14,710 --> 00:07:13,360
for the first time in our astronaut

120
00:07:16,469 --> 00:07:14,720
recruitment

121
00:07:18,790 --> 00:07:16,479
the presence of all of you

122
00:07:20,550 --> 00:07:18,800
the presence of our newest astronauts

123
00:07:23,110 --> 00:07:20,560
and the fact that interest is be in

124
00:07:25,749 --> 00:07:23,120
becoming an astronaut remains extremely

125
00:07:28,150 --> 00:07:25,759
high makes it clear human space flight

126
00:07:29,990 --> 00:07:28,160
is alive and well at nasa

127
00:07:31,589 --> 00:07:30,000
we're extremely proud of the

128
00:07:33,589 --> 00:07:31,599
trailblazing accomplishments of our

129
00:07:34,469 --> 00:07:33,599
shuttle astronauts over the past 30

130
00:07:36,309 --> 00:07:34,479
years

131
00:07:38,150 --> 00:07:36,319
but with the end of the shuttle program

132
00:07:40,230 --> 00:07:38,160
we're now setting our sights on even

133
00:07:42,309 --> 00:07:40,240
more distant horizons

134
00:07:44,629 --> 00:07:42,319
we are once again ready to go where no

135
00:07:46,469 --> 00:07:44,639
man or woman has gone before

136
00:07:49,110 --> 00:07:46,479
on the direction of president obama and

137
00:07:51,350 --> 00:07:49,120
the congress nasa is now embarking on an

138
00:07:53,430 --> 00:07:51,360

exciting journey into deep space

139
00:07:55,110 --> 00:07:53,440
and developing a space launch system

140
00:07:58,869 --> 00:07:55,120
that will be capable of transporting

141
00:08:00,869 --> 00:07:58,879
astronauts and cargo to mars asteroids

142
00:08:01,749 --> 00:08:00,879
and other places well beyond low earth

143
00:08:03,670 --> 00:08:01,759
orbit

144
00:08:05,510 --> 00:08:03,680
as a result we're beginning to

145
00:08:07,830 --> 00:08:05,520
transition transport to and from the

146
00:08:09,749 --> 00:08:07,840
international space station to america's

147
00:08:12,390 --> 00:08:09,759
commercial space sector rather than

148
00:08:13,589 --> 00:08:12,400
continuing to rely solely on our russian

149
00:08:15,029 --> 00:08:13,599
partners

150
00:08:18,710 --> 00:08:15,039
some of the astronauts here with us

151
00:08:20,469 --> 00:08:18,720
today graduates of the 2009 class will

152
00:08:22,710 --> 00:08:20,479
be the first americans to travel to the

153
00:08:24,469 --> 00:08:22,720
international space station aboard u.s

154
00:08:26,230 --> 00:08:24,479
commercial spacecraft

155
00:08:28,469 --> 00:08:26,240
some of the astronauts we're recruiting

156
00:08:30,469 --> 00:08:28,479
today and that's not to exclude these by

157
00:08:32,709 --> 00:08:30,479
the way some of the astronauts we're

158
00:08:34,790 --> 00:08:32,719
recruiting today will be pioneers in our

159
00:08:36,550 --> 00:08:34,800
missions to make the first footprints on

160
00:08:37,990 --> 00:08:36,560
the surface of mars

161
00:08:40,389 --> 00:08:38,000
thanks to our excellent flight crew

162
00:08:42,230 --> 00:08:40,399
operations team down in houston i'm

163
00:08:44,310 --> 00:08:42,240

confident our astronauts will continue

164
00:08:46,870 --> 00:08:44,320
to bring the right stuff the right

165
00:08:48,870 --> 00:08:46,880
skills and the right mindset needed to

166
00:08:51,430 --> 00:08:48,880
pursue this new course

167
00:08:53,829 --> 00:08:51,440
let me also say that as we enter this

168
00:08:55,430 --> 00:08:53,839
new era of commercial space flight there

169
00:08:57,350 --> 00:08:55,440
will be even more opportunities for

170
00:08:58,790 --> 00:08:57,360
those of you who want to fly because

171
00:09:01,269 --> 00:08:58,800
everybody's not going to want to be with

172
00:09:02,630 --> 00:09:01,279
nasa several of our commercial partners

173
00:09:03,670 --> 00:09:02,640
are doing their own astronaut

174
00:09:05,430 --> 00:09:03,680
recruitment

175
00:09:07,670 --> 00:09:05,440
some of our veterans of human space

176
00:09:10,070 --> 00:09:07,680
flight have taken key roles at our

177
00:09:13,110 --> 00:09:10,080
commercial partners and their expertise

178
00:09:15,430 --> 00:09:13,120
will be as invaluable as we fly the next

179
00:09:16,550 --> 00:09:15,440
generation on these new and innovative

180
00:09:17,750 --> 00:09:16,560
systems

181
00:09:19,670 --> 00:09:17,760
finally

182
00:09:21,430 --> 00:09:19,680
let me say to the students and the

183
00:09:24,550 --> 00:09:21,440
educators out there

184
00:09:25,910 --> 00:09:24,560
you are the keys you are the keys to

185
00:09:28,230 --> 00:09:25,920
nasa's future

186
00:09:30,230 --> 00:09:28,240
as i told this 2009 class and their

187
00:09:32,470 --> 00:09:30,240
classmates at their graduation event

188
00:09:34,389 --> 00:09:32,480

down in houston on november 4th

189
00:09:35,829 --> 00:09:34,399
in addition to their technical expertise

190
00:09:37,269 --> 00:09:35,839
and their special training for long

191
00:09:39,190 --> 00:09:37,279
duration missions

192
00:09:41,990 --> 00:09:39,200
their education and backgrounds in

193
00:09:43,430 --> 00:09:42,000
science technology engineering and

194
00:09:45,910 --> 00:09:43,440
mathematics

195
00:09:47,990 --> 00:09:45,920
make them uniquely qualified to maximize

196
00:09:50,790 --> 00:09:48,000
the potential of the international space

197
00:09:52,790 --> 00:09:50,800
station in coming years as the nasa

198
00:09:54,630 --> 00:09:52,800
administrator one of my greatest

199
00:09:56,949 --> 00:09:54,640
challenges and passions

200
00:09:59,430 --> 00:09:56,959
is to lead our nasa team in inspiring

201
00:10:01,190 --> 00:09:59,440
the next generation of americans to once

202
00:10:02,389 --> 00:10:01,200
again become interested in stem

203
00:10:03,430 --> 00:10:02,399
disciplines

204
00:10:05,750 --> 00:10:03,440
for me

205
00:10:06,870 --> 00:10:05,760
space exploration and education go hand

206
00:10:07,990 --> 00:10:06,880
in hand

207
00:10:10,389 --> 00:10:08,000
after all

208
00:10:11,350 --> 00:10:10,399
that's what space exploration is all

209
00:10:13,509 --> 00:10:11,360
about

210
00:10:16,310 --> 00:10:13,519
expanding our knowledge of the solar

211
00:10:17,990 --> 00:10:16,320
system and our relationship to it so

212
00:10:19,030 --> 00:10:18,000
that we can make life better here on

213
00:10:19,990 --> 00:10:19,040

earth

214
00:10:22,069 --> 00:10:20,000
so

215
00:10:24,949 --> 00:10:22,079
to all would-be future astronauts out

216
00:10:27,509 --> 00:10:24,959
there i say the first step begins with

217
00:10:28,710 --> 00:10:27,519
education especially in the stem

218
00:10:30,310 --> 00:10:28,720
disciplines

219
00:10:32,069 --> 00:10:30,320
and to the teachers

220
00:10:33,350 --> 00:10:32,079
and other educators with an interest in

221
00:10:35,509 --> 00:10:33,360
space flight

222
00:10:37,030 --> 00:10:35,519
i say there may be a place for you as a

223
00:10:39,590 --> 00:10:37,040
nasa astronaut

224
00:10:40,949 --> 00:10:39,600
we're actively encouraging k-12 teachers

225
00:10:42,790 --> 00:10:40,959
to apply

226
00:10:44,150 --> 00:10:42,800
we know that the experience will not

227
00:10:47,110 --> 00:10:44,160
only expand

228
00:10:48,870 --> 00:10:47,120
your knowledge of the cosmos

229
00:10:51,430 --> 00:10:48,880
it will be something you can bring back

230
00:10:52,710 --> 00:10:51,440
to the classroom to educate and excite

231
00:10:54,470 --> 00:10:52,720
your students

232
00:10:57,030 --> 00:10:54,480
whenever i have the chance to welcome

233
00:10:59,350 --> 00:10:57,040
new astronauts i think about my own

234
00:11:01,030 --> 00:10:59,360
unlikely journey from the segregated

235
00:11:03,509 --> 00:11:01,040
schools and neighborhoods of columbia

236
00:11:04,470 --> 00:11:03,519
south carolina to nasa and the astronaut

237
00:11:07,269 --> 00:11:04,480
office

238
00:11:09,430 --> 00:11:07,279

i flew four times in space i was blessed

239
00:11:10,710 --> 00:11:09,440
twice as a shuttle commander and twice

240
00:11:13,030 --> 00:11:10,720
as a pilot

241
00:11:14,790 --> 00:11:13,040
while every mission had its own set of

242
00:11:16,870 --> 00:11:14,800
challenges and discoveries

243
00:11:18,630 --> 00:11:16,880
what stands out most to me

244
00:11:20,470 --> 00:11:18,640
is the incredible view of our planet

245
00:11:21,590 --> 00:11:20,480
earth from the vantage point of outer

246
00:11:23,430 --> 00:11:21,600
space

247
00:11:25,829 --> 00:11:23,440
as our new astronauts will one day see

248
00:11:27,910 --> 00:11:25,839
for themselves from orbit

249
00:11:30,150 --> 00:11:27,920
the borders of the world aren't visible

250
00:11:34,150 --> 00:11:30,160
unless created by mother nature

251
00:11:36,069 --> 00:11:34,160
we all as crews as teams work together

252
00:11:38,710 --> 00:11:36,079
toward common goals

253
00:11:40,790 --> 00:11:38,720
that's what we do at nasa

254
00:11:43,269 --> 00:11:40,800
that's what our astronauts do

255
00:11:45,590 --> 00:11:43,279
no matter their race gender cultural

256
00:11:47,670 --> 00:11:45,600
perspective or background

257
00:11:48,710 --> 00:11:47,680
they all sign up for a common purpose

258
00:11:49,910 --> 00:11:48,720
and vision

259
00:11:51,750 --> 00:11:49,920
i quote

260
00:11:52,790 --> 00:11:51,760
to reach new heights and reveal the

261
00:11:55,030 --> 00:11:52,800
unknown

262
00:11:58,629 --> 00:11:55,040
so that what we do and learn will

263
00:12:00,230 --> 00:11:58,639

benefit all humankind unquote at nasa

264
00:12:01,750 --> 00:12:00,240
that's our vision

265
00:12:04,629 --> 00:12:01,760
and now

266
00:12:06,470 --> 00:12:04,639
this is your moment to join us

267
00:12:09,430 --> 00:12:06,480
now i'd like to turn the podium over to

268
00:12:10,550 --> 00:12:09,440
my good friend my really really really

269
00:12:12,389 --> 00:12:10,560
good friend

270
00:12:22,870 --> 00:12:12,399
the director of nasa's flight crew

271
00:12:27,269 --> 00:12:25,030
good morning thank you all for coming

272
00:12:28,790 --> 00:12:27,279
today this is an exciting day for us we

273
00:12:30,629 --> 00:12:28,800
always get very excited when we get to

274
00:12:33,350 --> 00:12:30,639
hire new astronauts

275
00:12:35,430 --> 00:12:33,360
it is a process that we try to to do

276
00:12:37,509 --> 00:12:35,440
about every two to four years so this is

277
00:12:38,389 --> 00:12:37,519
not a new process it's just a continuing

278
00:12:40,790 --> 00:12:38,399
process

279
00:12:44,230 --> 00:12:40,800
and we select astronauts in order to

280
00:12:46,710 --> 00:12:44,240
preserve the pool that we need to assign

281
00:12:48,790 --> 00:12:46,720
people who are qualified to fly in space

282
00:12:50,150 --> 00:12:48,800
and to operate the international space

283
00:12:52,550 --> 00:12:50,160
station

284
00:12:55,190 --> 00:12:52,560
we are looking for the most qualified

285
00:12:56,470 --> 00:12:55,200
people we can get to be part of this

286
00:13:00,629 --> 00:12:56,480
elite corps

287
00:13:03,509 --> 00:13:00,639
it is not an easy process to be selected

288
00:13:05,910 --> 00:13:03,519

we also find that diversity is really a

289
00:13:08,550 --> 00:13:05,920
strong component in having a successful

290
00:13:10,230 --> 00:13:08,560
astronaut corps therefore we seek out

291
00:13:11,670 --> 00:13:10,240
candidates from a wide variety of

292
00:13:13,269 --> 00:13:11,680
backgrounds

293
00:13:14,230 --> 00:13:13,279
now diversity may include a lot of

294
00:13:16,230 --> 00:13:14,240
different things and we were just

295
00:13:17,990 --> 00:13:16,240
talking backstage about what types of

296
00:13:20,710 --> 00:13:18,000
diversity we have

297
00:13:22,949 --> 00:13:20,720
we have diversity in types of medical

298
00:13:25,030 --> 00:13:22,959
degrees science degrees engineering

299
00:13:26,790 --> 00:13:25,040
degrees we have military versus

300
00:13:29,509 --> 00:13:26,800
non-military we have different branches

301
00:13:31,110 --> 00:13:29,519
of the military we have of course all

302
00:13:32,870 --> 00:13:31,120
the different genders and we have

303
00:13:34,870 --> 00:13:32,880
different ethnicities in the office as

304
00:13:36,870 --> 00:13:34,880
well so we encourage people from every

305
00:13:39,269 --> 00:13:36,880
kind of background who meets the minimum

306
00:13:41,030 --> 00:13:39,279
qualifications to apply

307
00:13:43,590 --> 00:13:41,040
now those minimum qualifications are not

308
00:13:45,750 --> 00:13:43,600
necessarily easy they require

309
00:13:48,470 --> 00:13:45,760
backgrounds in math and science and or

310
00:13:50,790 --> 00:13:48,480
engineering and or flying

311
00:13:52,629 --> 00:13:50,800
high performance aircraft flying

312
00:13:54,710 --> 00:13:52,639
and we need those kinds of backgrounds

313
00:13:56,230 --> 00:13:54,720

because of what we do after we bring you

314
00:13:57,910 --> 00:13:56,240
to nasa

315
00:13:59,750 --> 00:13:57,920
we can't very well teach orbital

316
00:14:01,990 --> 00:13:59,760
mechanics to someone who hasn't taken

317
00:14:04,150 --> 00:14:02,000
physics in college so it's very

318
00:14:05,990 --> 00:14:04,160
important to have that strong background

319
00:14:08,389 --> 00:14:06,000
so that you're ready to take on the

320
00:14:10,230 --> 00:14:08,399
educational challenges once you reach

321
00:14:11,990 --> 00:14:10,240
nasa

322
00:14:14,230 --> 00:14:12,000
okay all and

323
00:14:16,150 --> 00:14:14,240
candidates who apply

324
00:14:18,230 --> 00:14:16,160
can expect to fly to space in either a

325
00:14:20,949 --> 00:14:18,240
soyuz rocket which we just launched one

326
00:14:24,230 --> 00:14:20,959
sunday night has one american and two

327
00:14:25,910 --> 00:14:24,240
russian cosmonauts on board we have uh

328
00:14:27,670 --> 00:14:25,920
one american already on the space

329
00:14:29,350 --> 00:14:27,680
station we have a japanese astronaut and

330
00:14:30,470 --> 00:14:29,360
another russian astronaut already on the

331
00:14:34,150 --> 00:14:30,480
space station

332
00:14:36,389 --> 00:14:34,160
they all arrive there via a soyuz rocket

333
00:14:38,310 --> 00:14:36,399
we may in the very near future have

334
00:14:40,389 --> 00:14:38,320
commercial vehicles which we can use to

335
00:14:41,910 --> 00:14:40,399
launch people to the space station and

336
00:14:43,990 --> 00:14:41,920
then hopefully in the not too distant

337
00:14:46,550 --> 00:14:44,000
future we will have capsules that will

338
00:14:48,870 --> 00:14:46,560

carry us beyond the low earth orbit back

339
00:14:51,269 --> 00:14:48,880
and out to the moon and beyond to other

340
00:14:53,189 --> 00:14:51,279
exciting locations

341
00:14:54,389 --> 00:14:53,199
all qualified applicants will apply

342
00:14:56,230 --> 00:14:54,399
online

343
00:14:59,350 --> 00:14:56,240
and there's a website that we can put up

344
00:15:01,350 --> 00:14:59,360
for you in just a moment's usajobs.gov

345
00:15:03,110 --> 00:15:01,360
where you will be able to receive your

346
00:15:04,790 --> 00:15:03,120
applications

347
00:15:08,550 --> 00:15:04,800
please fill those out carefully and put

348
00:15:10,790 --> 00:15:08,560
down all your qualifications to apply

349
00:15:13,110 --> 00:15:10,800
the the selection process as i mentioned

350
00:15:14,790 --> 00:15:13,120
is not easy it's very rigorous

351
00:15:16,470 --> 00:15:14,800
the training process is even more

352
00:15:18,949 --> 00:15:16,480
rigorous not everyone will make it

353
00:15:20,870 --> 00:15:18,959
through it's getting harder every year

354
00:15:22,470 --> 00:15:20,880
because in the past where we had seven

355
00:15:24,710 --> 00:15:22,480
crew members on a shuttle

356
00:15:26,790 --> 00:15:24,720
maybe one would be specializing in

357
00:15:28,949 --> 00:15:26,800
spacewalking or two when spacewalking

358
00:15:30,710 --> 00:15:28,959
one in robotics we had a pilot and

359
00:15:32,629 --> 00:15:30,720
commander and everyone had their

360
00:15:34,470 --> 00:15:32,639
specialty but on the international space

361
00:15:36,629 --> 00:15:34,480
station everyone really has to be able

362
00:15:38,790 --> 00:15:36,639
to do all jobs so everyone has to be

363
00:15:40,790 --> 00:15:38,800

able to spacewalk everyone has to be

364
00:15:42,710 --> 00:15:40,800
able to do robotics everyone needs to

365
00:15:45,430 --> 00:15:42,720
know russian everyone needs to know the

366
00:15:47,110 --> 00:15:45,440
orbital mechanics so it's really a much

367
00:15:48,150 --> 00:15:47,120
more challenging and rigorous training

368
00:15:48,949 --> 00:15:48,160
process

369
00:15:50,310 --> 00:15:48,959
but

370
00:15:52,310 --> 00:15:50,320
if you're selected and you make it

371
00:15:54,949 --> 00:15:52,320
through that process the experience is

372
00:15:56,949 --> 00:15:54,959
well worth the wait i think charlie or

373
00:15:58,710 --> 00:15:56,959
anyone who's been to space can say that

374
00:16:00,550 --> 00:15:58,720
it was definitely worth all the hard

375
00:16:02,069 --> 00:16:00,560
work to get there

376
00:16:04,949 --> 00:16:02,079
and the knowledge that you are helping

377
00:16:07,030 --> 00:16:04,959
mankind through immeasurable means it's

378
00:16:08,629 --> 00:16:07,040
just impressive you know it makes you

379
00:16:10,550 --> 00:16:08,639
feel really good that you've helped the

380
00:16:11,670 --> 00:16:10,560
earth and everyone on it by doing this

381
00:16:14,310 --> 00:16:11,680
job

382
00:16:17,189 --> 00:16:14,320
so now i'd like to introduce dr serena

383
00:16:19,430 --> 00:16:17,199
ahnen she is both a double e a

384
00:16:21,670 --> 00:16:19,440
bachelor's in electrical engineering and

385
00:16:23,749 --> 00:16:21,680
a medical doctor and she can help tell

386
00:16:32,230 --> 00:16:23,759
you about their training process and

387
00:16:35,829 --> 00:16:33,670
all right well good afternoon thank you

388
00:16:37,670 --> 00:16:35,839

we are very excited and happy to be here

389
00:16:38,629 --> 00:16:37,680
for this announcement of a new nasa

390
00:16:40,629 --> 00:16:38,639
class we wanted to thank the

391
00:16:43,430 --> 00:16:40,639
administrator for joining us for our

392
00:16:44,949 --> 00:16:43,440
graduation in texas at the early part of

393
00:16:46,949 --> 00:16:44,959
this month we had a big texas barbecue

394
00:16:49,749 --> 00:16:46,959
there at ellington airfield

395
00:16:51,350 --> 00:16:49,759
and you know we're excited because the

396
00:16:53,269 --> 00:16:51,360
bringing on a new nasa class means a

397
00:16:54,790 --> 00:16:53,279
couple of things we've got more people

398
00:16:56,870 --> 00:16:54,800
to work with us to travel to and from

399
00:16:58,310 --> 00:16:56,880
the international space station

400
00:17:00,470 --> 00:16:58,320
uh we've got new commercial vehicles

401
00:17:02,470 --> 00:17:00,480
coming online but even more important

402
00:17:04,710 --> 00:17:02,480
for our class is we don't have to do the

403
00:17:06,630 --> 00:17:04,720
christmas skit anymore the junior

404
00:17:09,350 --> 00:17:06,640
astronaut class has to stand in front of

405
00:17:11,029 --> 00:17:09,360
the entire office every year and put on

406
00:17:12,309 --> 00:17:11,039
a big play

407
00:17:14,069 --> 00:17:12,319
so and that can be kind of tricky

408
00:17:15,590 --> 00:17:14,079
sometimes we have a lot of fun doing it

409
00:17:17,510 --> 00:17:15,600
but let me tell you i wanted to let

410
00:17:18,949 --> 00:17:17,520
administrator bolton know and dr kamandi

411
00:17:20,789 --> 00:17:18,959
that we don't care when that new class

412
00:17:22,789 --> 00:17:20,799
starts we don't care if it's december

413
00:17:23,909 --> 00:17:22,799

24th they are doing the christmas gift

414
00:17:26,549 --> 00:17:23,919
this year

415
00:17:28,150 --> 00:17:26,559
so just so you all know

416
00:17:30,150 --> 00:17:28,160
wanted to talk to you a little bit today

417
00:17:31,110 --> 00:17:30,160
about our selection process that we went

418
00:17:32,549 --> 00:17:31,120
through

419
00:17:33,990 --> 00:17:32,559
because it was new as dr cavani

420
00:17:35,909 --> 00:17:34,000
mentioned and it would be this very

421
00:17:38,150 --> 00:17:35,919
similar for the next class coming in but

422
00:17:39,830 --> 00:17:38,160
then also our training because the next

423
00:17:41,510 --> 00:17:39,840
group of astronauts that comes in will

424
00:17:43,029 --> 00:17:41,520
be undergoing a lot of the same training

425
00:17:45,110 --> 00:17:43,039
that we did

426
00:17:47,350 --> 00:17:45,120
we were one of the first classes

427
00:17:49,990 --> 00:17:47,360
that came in knowing we would never fly

428
00:17:51,830 --> 00:17:50,000
on shuttle our job would be to fly to

429
00:17:53,510 --> 00:17:51,840
the international space station on the

430
00:17:55,990 --> 00:17:53,520
russian soyuz rocket

431
00:17:57,909 --> 00:17:56,000
so when we came in uh selection which is

432
00:18:00,630 --> 00:17:57,919
now two weeks long instead of it used to

433
00:18:02,630 --> 00:18:00,640
be only a week

434
00:18:04,789 --> 00:18:02,640
we had a lot of talks from dr peggy

435
00:18:05,830 --> 00:18:04,799
whitson about the training and the time

436
00:18:07,350 --> 00:18:05,840
it takes

437
00:18:09,270 --> 00:18:07,360
to train for an international space

438
00:18:10,549 --> 00:18:09,280

station mission once you're assigned

439
00:18:12,310 --> 00:18:10,559
it's about a two and a half year

440
00:18:13,430 --> 00:18:12,320
training flow and about 60 percent of

441
00:18:15,430 --> 00:18:13,440
that time

442
00:18:16,549 --> 00:18:15,440
is spent overseas because you are

443
00:18:18,310 --> 00:18:16,559
training with your international

444
00:18:20,230 --> 00:18:18,320
partners on their modules the

445
00:18:21,990 --> 00:18:20,240
international space station is huge

446
00:18:23,510 --> 00:18:22,000
which is a great thing

447
00:18:25,430 --> 00:18:23,520
but in order to train and learn about

448
00:18:26,710 --> 00:18:25,440
the columbus module and the gem module

449
00:18:29,029 --> 00:18:26,720
you need to go to those countries so

450
00:18:30,310 --> 00:18:29,039
they can teach you so it is a big time

451
00:18:32,230 --> 00:18:30,320
commitment there is a lot of travel

452
00:18:34,150 --> 00:18:32,240
that's involved

453
00:18:37,110 --> 00:18:34,160
one thing that also lengthened the

454
00:18:39,510 --> 00:18:37,120
selection process was medical so we had

455
00:18:40,470 --> 00:18:39,520
a whole week-long worth of medical tests

456
00:18:42,390 --> 00:18:40,480
and that's just to make sure that

457
00:18:44,230 --> 00:18:42,400
everybody is healthy from head to toe

458
00:18:45,590 --> 00:18:44,240
before we send them on a long duration

459
00:18:47,270 --> 00:18:45,600
mission

460
00:18:48,630 --> 00:18:47,280
the exciting part about selection is we

461
00:18:50,789 --> 00:18:48,640
knew that our international partner

462
00:18:52,470 --> 00:18:50,799
agencies were also having a selection at

463
00:18:54,710 --> 00:18:52,480

the same time

464
00:18:57,350 --> 00:18:54,720
so when we were selected finally and

465
00:19:00,549 --> 00:18:57,360
announced in june of 2009 we learned

466
00:19:01,909 --> 00:19:00,559
that we had six new friends from esa

467
00:19:03,990 --> 00:19:01,919
three from jackson and two from the

468
00:19:05,190 --> 00:19:04,000
canadian space agency and almost

469
00:19:06,950 --> 00:19:05,200
immediately a lot of those folks

470
00:19:08,710 --> 00:19:06,960
traveled down to johnson space center

471
00:19:10,070 --> 00:19:08,720
with their families so they could begin

472
00:19:13,909 --> 00:19:10,080
training with us so it was like our

473
00:19:18,789 --> 00:19:16,630
as far as training so again we came in

474
00:19:20,310 --> 00:19:18,799
classes before us spent a lot of time on

475
00:19:22,310 --> 00:19:20,320
shuttle systems because that was a

476
00:19:25,029 --> 00:19:22,320
vehicle they were flying with our class

477
00:19:26,789 --> 00:19:25,039
we did have a few lessons on the orbiter

478
00:19:28,950 --> 00:19:26,799
but almost right away they focused our

479
00:19:31,190 --> 00:19:28,960
training into three main areas

480
00:19:33,830 --> 00:19:31,200
international space station systems

481
00:19:35,430 --> 00:19:33,840
robotics and eva and these pictures that

482
00:19:37,029 --> 00:19:35,440
you see playing behind you just wanted

483
00:19:38,630 --> 00:19:37,039
to share some of the pictures that

484
00:19:40,710 --> 00:19:38,640
occurred during our training over the

485
00:19:41,510 --> 00:19:40,720
past two years

486
00:19:43,590 --> 00:19:41,520
so

487
00:19:44,630 --> 00:19:43,600
and uh just that you know what we went

488
00:19:46,150 --> 00:19:44,640

through and you'll see a lot of our

489
00:19:47,350 --> 00:19:46,160
international partners in these pictures

490
00:19:49,430 --> 00:19:47,360
as well

491
00:19:51,430 --> 00:19:49,440
as far as space station systems we would

492
00:19:53,830 --> 00:19:51,440
take classes on the electrical power

493
00:19:55,830 --> 00:19:53,840
system for the iss or environmental

494
00:19:57,750 --> 00:19:55,840
control and life support okay how do you

495
00:19:59,110 --> 00:19:57,760
control the humidity on board the space

496
00:20:00,950 --> 00:19:59,120
station how do we get the air that we

497
00:20:02,630 --> 00:20:00,960
breathe onboard the space station how do

498
00:20:04,070 --> 00:20:02,640
we maintain pressure these are things

499
00:20:05,669 --> 00:20:04,080
you got to worry about this is your home

500
00:20:07,430 --> 00:20:05,679
for six months

501
00:20:09,190 --> 00:20:07,440
so we'd have classes in our big building

502
00:20:10,549 --> 00:20:09,200
9 mock-up facility at johnson space

503
00:20:12,310 --> 00:20:10,559
center where we have a full-scale

504
00:20:14,630 --> 00:20:12,320
mock-up of the international space

505
00:20:16,149 --> 00:20:14,640
station and we also travel to a lot of

506
00:20:17,590 --> 00:20:16,159
our international partner countries like

507
00:20:20,070 --> 00:20:17,600
i mentioned before to get training on

508
00:20:22,070 --> 00:20:20,080
their modules

509
00:20:23,750 --> 00:20:22,080
another important part is procedures

510
00:20:25,190 --> 00:20:23,760
day-to-day operations onboard the

511
00:20:26,789 --> 00:20:25,200
international space station involve a

512
00:20:28,950 --> 00:20:26,799
lot of procedures

513
00:20:30,390 --> 00:20:28,960

um checklists even things like emergency

514
00:20:31,909 --> 00:20:30,400
procedures things which could put the

515
00:20:33,510 --> 00:20:31,919
crew in danger on board the space

516
00:20:35,750 --> 00:20:33,520
station big thing we worry about is what

517
00:20:36,630 --> 00:20:35,760
if a fire breaks out what if we lose

518
00:20:38,390 --> 00:20:36,640
pressure

519
00:20:40,310 --> 00:20:38,400
what if we have uh the release of a

520
00:20:42,630 --> 00:20:40,320
toxic substance so those are our three

521
00:20:44,390 --> 00:20:42,640
big emergencies on board iss and every

522
00:20:45,909 --> 00:20:44,400
day we train to run through procedures

523
00:20:47,029 --> 00:20:45,919
so that we make sure if any of those

524
00:20:48,870 --> 00:20:47,039
happen

525
00:20:51,029 --> 00:20:48,880
we keep the crew safe and we keep the

526
00:20:52,390 --> 00:20:51,039
vehicle safe

527
00:20:58,310 --> 00:20:52,400
robotics

528
00:21:00,630 --> 00:20:58,320
is on a computer and it's to teach us

529
00:21:02,390 --> 00:21:00,640
how to begin to operate the robot arm on

530
00:21:03,750 --> 00:21:02,400
board the space station and you're

531
00:21:05,270 --> 00:21:03,760
basically learning how to move in in

532
00:21:07,510 --> 00:21:05,280
coordinate frames

533
00:21:09,350 --> 00:21:07,520
so for all you kids down here who plays

534
00:21:13,029 --> 00:21:09,360
video games

535
00:21:14,789 --> 00:21:13,039
okay everybody just woke up

536
00:21:16,710 --> 00:21:14,799
so with video games believe it or not

537
00:21:17,909 --> 00:21:16,720
you can enhance your ability to do

538
00:21:20,149 --> 00:21:17,919

robotics well

539
00:21:21,590 --> 00:21:20,159
so remember that

540
00:21:24,149 --> 00:21:21,600
the third big area that we did with

541
00:21:26,149 --> 00:21:24,159
training is eva extravehicular activity

542
00:21:27,430 --> 00:21:26,159
or spacewalks and we do spacewalk

543
00:21:29,669 --> 00:21:27,440
training and you'll see a few pictures

544
00:21:32,470 --> 00:21:29,679
back here of us training in our big pool

545
00:21:33,909 --> 00:21:32,480
out there at the johnson space center

546
00:21:35,830 --> 00:21:33,919
but the reason

547
00:21:37,990 --> 00:21:35,840
you know in years past our focus for

548
00:21:40,149 --> 00:21:38,000
spacewalks was for construction of the

549
00:21:42,310 --> 00:21:40,159
international space station now the

550
00:21:43,750 --> 00:21:42,320
space station it's like a house

551
00:21:45,750 --> 00:21:43,760
and as a house gets older you may have

552
00:21:48,310 --> 00:21:45,760
to make some repairs to that house

553
00:21:49,350 --> 00:21:48,320
so now our training for spacewalks deals

554
00:21:54,070 --> 00:21:49,360
on

555
00:21:56,149 --> 00:21:54,080
what might we need to fix

556
00:21:58,470 --> 00:21:56,159
and so like dr cavandi mentioned anybody

557
00:22:01,110 --> 00:21:58,480
that we send up to do a six-month

558
00:22:03,669 --> 00:22:01,120
mission has to be prepared to go out the

559
00:22:05,669 --> 00:22:03,679
airlock and do a spacewalk

560
00:22:07,350 --> 00:22:05,679
everybody has to be prepared to do

561
00:22:09,669 --> 00:22:07,360
robotics whatever they're called on to

562
00:22:13,350 --> 00:22:09,679
do to keep the vehicle safe to keep the

563
00:22:16,789 --> 00:22:15,190

the other good part about that is again

564
00:22:18,950 --> 00:22:16,799
at the same time we've got our partners

565
00:22:21,029 --> 00:22:18,960
from the canadian space agency our

566
00:22:22,630 --> 00:22:21,039
partners from the japanese space agency

567
00:22:24,070 --> 00:22:22,640
and also the european space agency

568
00:22:25,350 --> 00:22:24,080
training with us all at the same time

569
00:22:28,230 --> 00:22:25,360
and if you look at the crew on orbit

570
00:22:30,789 --> 00:22:28,240
right now you've got mike satoshi and

571
00:22:32,470 --> 00:22:30,799
sergey an american a japanese and a

572
00:22:33,590 --> 00:22:32,480
russian all working together and doing

573
00:22:36,070 --> 00:22:33,600
extremely

574
00:22:37,750 --> 00:22:36,080
a great job

575
00:22:39,430 --> 00:22:37,760
so talking about russians russian

576
00:22:41,029 --> 00:22:39,440
language you've probably heard a little

577
00:22:43,830 --> 00:22:41,039
bit about this in the media

578
00:22:45,669 --> 00:22:43,840
a lot of our classes uh in russian

579
00:22:46,789 --> 00:22:45,679
honestly most of our astronaut classes

580
00:22:49,350 --> 00:22:46,799
have been learning russian for a very

581
00:22:51,909 --> 00:22:49,360
very long time this is nothing new

582
00:22:53,190 --> 00:22:51,919
now our russian cosmonauts also learn

583
00:22:55,350 --> 00:22:53,200
english at the same time we're learning

584
00:22:57,430 --> 00:22:55,360
russian but right now we fly to and from

585
00:22:59,270 --> 00:22:57,440
the international space station on board

586
00:23:00,710 --> 00:22:59,280
a russian soyuz rocket

587
00:23:01,830 --> 00:23:00,720
so we have to make sure we know russian

588
00:23:03,590 --> 00:23:01,840

systems

589
00:23:05,350 --> 00:23:03,600
we know russian procedures because when

590
00:23:07,110 --> 00:23:05,360
we talk to the russian mission control

591
00:23:08,390 --> 00:23:07,120
it's not in english

592
00:23:09,669 --> 00:23:08,400
if there are any emergencies that occur

593
00:23:11,590 --> 00:23:09,679
on board you want to make sure that you

594
00:23:12,870 --> 00:23:11,600
work well with your team

595
00:23:14,149 --> 00:23:12,880
and the bigger purpose of that of

596
00:23:16,070 --> 00:23:14,159
learning the russian language and for

597
00:23:17,110 --> 00:23:16,080
the cosmonauts to learn english

598
00:23:19,110 --> 00:23:17,120
is to

599
00:23:20,950 --> 00:23:19,120
build that crew camaraderie and that

600
00:23:22,549 --> 00:23:20,960
sense of cohesiveness you're living with

601
00:23:23,909 --> 00:23:22,559
these this is your family for the next

602
00:23:25,430 --> 00:23:23,919
six months aboard the international

603
00:23:26,710 --> 00:23:25,440
space station so you want to make sure

604
00:23:28,230 --> 00:23:26,720
that everybody's comfortable talking

605
00:23:30,070 --> 00:23:28,240
about everything ranging from the

606
00:23:32,070 --> 00:23:30,080
mission to their dreams to their

607
00:23:33,590 --> 00:23:32,080
families into their values and learning

608
00:23:35,029 --> 00:23:33,600
the russian language helps with that and

609
00:23:36,470 --> 00:23:35,039
sometimes my colleagues and i you know

610
00:23:38,549 --> 00:23:36,480
russian was tough for us to learn it's a

611
00:23:40,789 --> 00:23:38,559
difficult language but our international

612
00:23:42,230 --> 00:23:40,799
partners like our japanese colleagues

613
00:23:45,269 --> 00:23:42,240

when they came down they had to learn

614
00:23:46,630 --> 00:23:45,279
russian in english

615
00:23:49,190 --> 00:23:46,640
and they're still trying to work on

616
00:23:50,630 --> 00:23:49,200
their english from japanese so we don't

617
00:23:51,990 --> 00:23:50,640
feel so bad anymore

618
00:23:55,269 --> 00:23:52,000
after watching them struggle through it

619
00:23:56,710 --> 00:23:55,279
but they did a magnificent job

620
00:23:58,630 --> 00:23:56,720
finally one of the last focuses of our

621
00:24:01,190 --> 00:23:58,640
training was on geology

622
00:24:03,990 --> 00:24:01,200
because no matter what body we step foot

623
00:24:04,789 --> 00:24:04,000
on next our class the next class coming

624
00:24:06,549 --> 00:24:04,799
up

625
00:24:08,310 --> 00:24:06,559
could go back to the moon

626
00:24:10,789 --> 00:24:08,320
could go to an asteroid

627
00:24:12,070 --> 00:24:10,799
and as we push on towards mars

628
00:24:15,269 --> 00:24:12,080
we have to make sure that when we get

629
00:24:16,870 --> 00:24:15,279
there we can describe geologic processes

630
00:24:18,549 --> 00:24:16,880
so our class spent a lot of time with

631
00:24:20,470 --> 00:24:18,559
geology professors across the country

632
00:24:21,990 --> 00:24:20,480
and at different field sites learning

633
00:24:24,470 --> 00:24:22,000
how to tell the geologic history of an

634
00:24:28,149 --> 00:24:26,630
so finally to wrap things up we're

635
00:24:30,310 --> 00:24:28,159
excited about the future things are

636
00:24:31,990 --> 00:24:30,320
going to get very very busy we've got

637
00:24:34,630 --> 00:24:32,000
international space station operations

638
00:24:36,310 --> 00:24:34,640

occurring 24 7 around the clock six

639
00:24:37,669 --> 00:24:36,320
people up there

640
00:24:39,510 --> 00:24:37,679
we've got commercial vehicles which are

641
00:24:40,549 --> 00:24:39,520
going to be coming online really really

642
00:24:43,269 --> 00:24:40,559
soon

643
00:24:44,549 --> 00:24:43,279
we've got mpcv the orion and those test

644
00:24:46,470 --> 00:24:44,559
flights are going to be coming up more

645
00:24:49,029 --> 00:24:46,480
quickly than anybody could possibly

646
00:24:50,470 --> 00:24:49,039
imagine so there's work to be done

647
00:24:52,390 --> 00:24:50,480
i can speak for my class i know that

648
00:24:54,310 --> 00:24:52,400
we're ready to serve

649
00:25:02,789 --> 00:24:54,320
and we're ready to get going so thanks

650
00:25:06,950 --> 00:25:04,950
thank you very much serena and now to

651
00:25:09,110 --> 00:25:06,960
learn more about the process for how you

652
00:25:11,029 --> 00:25:09,120
can become an astronaut and uh the

653
00:25:13,269 --> 00:25:11,039
relationship between nasa and the office

654
00:25:14,870 --> 00:25:13,279
of personnel management and the website

655
00:25:16,710 --> 00:25:14,880
through which you can apply i'd like to

656
00:25:18,390 --> 00:25:16,720
once again introduce our assistant

657
00:25:19,590 --> 00:25:18,400
administrator for human capital jerry

658
00:25:26,310 --> 00:25:19,600
buchholz

659
00:25:30,630 --> 00:25:28,950
can you pull up the featured job website

660
00:25:32,549 --> 00:25:30,640
for me please

661
00:25:35,350 --> 00:25:32,559
we're very excited about our astronaut

662
00:25:37,750 --> 00:25:35,360
candidate vacancy announcement and the

663
00:25:39,909 --> 00:25:37,760

partnership that we have with the u.s

664
00:25:42,390 --> 00:25:39,919
office of personnel management to

665
00:25:43,590 --> 00:25:42,400
feature this vacancy announcement on the

666
00:25:46,549 --> 00:25:43,600
website

667
00:25:49,029 --> 00:25:46,559
if you go to the featured job you will

668
00:25:50,870 --> 00:25:49,039
be able to read about the nasa mission

669
00:25:52,789 --> 00:25:50,880
learn a little bit about what it means

670
00:25:57,990 --> 00:25:52,799
to be an astronaut and what the

671
00:26:03,590 --> 00:26:00,950
can we have the video please we have a

672
00:26:13,750 --> 00:26:03,600
little video that shows you a little bit

673
00:26:13,760 --> 00:26:16,710
the video

674
00:26:16,720 --> 00:26:25,510
i promise you there's a video

675
00:26:45,190 --> 00:26:27,750
human exploration of space

676
00:26:49,430 --> 00:26:47,029
we're going to send humans farther into

677
00:27:03,830 --> 00:26:49,440
space than ever before and eventually to

678
00:27:14,710 --> 00:27:06,070
with new spacecraft and rockets that'll

679
00:27:18,830 --> 00:27:16,070
we need you

680
00:27:21,350 --> 00:27:18,840
to help plan for this future of

681
00:27:24,070 --> 00:27:21,360
exploration join nasa get your

682
00:27:31,110 --> 00:27:24,080
application in now for the 2013

683
00:27:36,870 --> 00:27:33,590
your space flight experience begins

684
00:27:43,430 --> 00:27:36,880
right here right now

685
00:27:50,870 --> 00:27:46,870
all right i thought it was awfully good

686
00:27:50,880 --> 00:27:54,470
okay

687
00:28:14,070 --> 00:27:56,630
human exploration of space

688
00:28:18,310 --> 00:28:15,909

we're going to send humans farther into

689
00:28:32,710 --> 00:28:18,320
space than ever before and eventually to

690
00:28:43,590 --> 00:28:34,950
with new spacecraft and rockets that'll

691
00:28:48,710 --> 00:28:46,549
we need you to help plan for this future

692
00:28:51,750 --> 00:28:48,720
of exploration

693
00:29:00,070 --> 00:28:51,760
join nasa get your application in now

694
00:29:13,510 --> 00:29:02,470
your space flight experience begins

695
00:29:19,110 --> 00:29:15,830
okay for all of those up-and-coming

696
00:29:20,710 --> 00:29:19,120
young astronauts out there we have the

697
00:29:23,669 --> 00:29:20,720
actual vacancy announcement that's

698
00:29:26,470 --> 00:29:23,679
posted on usajobs 3.0 the new federal

699
00:29:30,070 --> 00:29:26,480
government recruitment website you can

700
00:29:32,950 --> 00:29:30,080
go to uh the opm website usajobs search

701
00:29:34,149 --> 00:29:32,960
on astronaut and it will pop right up

702
00:29:36,149 --> 00:29:34,159
for you

703
00:29:37,830 --> 00:29:36,159
one of the places that you guys sitting

704
00:29:40,789 --> 00:29:37,840
down here in the front row might want to

705
00:29:43,350 --> 00:29:40,799
pay particular attention to are the

706
00:29:46,549 --> 00:29:43,360
qualifications because we're looking for

707
00:29:48,710 --> 00:29:46,559
people with degrees in science and

708
00:29:51,430 --> 00:29:48,720
engineering and math so i would

709
00:29:53,269 --> 00:29:51,440
encourage all of you if you want to be

710
00:29:56,630 --> 00:29:53,279
an astronaut someday if you want to be

711
00:29:58,789 --> 00:29:56,640
the person floating around in space

712
00:30:00,230 --> 00:29:58,799
you need to continue to pursue that kind

713
00:30:03,190 --> 00:30:00,240

of education

714
00:30:05,990 --> 00:30:03,200
for the coming years

715
00:30:08,230 --> 00:30:06,000
it's easy to apply we have an applicant

716
00:30:10,310 --> 00:30:08,240
guide and as you scroll through the

717
00:30:11,830 --> 00:30:10,320
vacancy announcement you will see links

718
00:30:14,870 --> 00:30:11,840
that will take you to that applicant

719
00:30:16,870 --> 00:30:14,880
guide if you are interested in applying

720
00:30:18,710 --> 00:30:16,880
to be an astronaut candidate i suggest

721
00:30:20,630 --> 00:30:18,720
that you read through the applicant

722
00:30:22,950 --> 00:30:20,640
guide to make sure that you follow all

723
00:30:25,269 --> 00:30:22,960
of the required steps for the vacancy

724
00:30:27,269 --> 00:30:25,279
announcement but it couldn't be easier

725
00:30:30,070 --> 00:30:27,279
to actually apply

726
00:30:32,710 --> 00:30:30,080
there is an apply online button that

727
00:30:35,430 --> 00:30:32,720
will take you directly to the nasa job

728
00:30:37,750 --> 00:30:35,440
recruitment site where you can upload

729
00:30:39,110 --> 00:30:37,760
your resume and begin the application

730
00:30:42,789 --> 00:30:39,120
process

731
00:30:45,350 --> 00:30:42,799
so i encourage all of you interested

732
00:30:48,070 --> 00:30:45,360
future astronauts to apply for the

733
00:30:49,590 --> 00:30:48,080
astronaut candidate announcement and

734
00:30:52,389 --> 00:30:49,600
three years from now

735
00:30:59,830 --> 00:30:52,399
one of you could be sitting up here

736
00:31:03,590 --> 00:31:01,190
all right it's time to take some

737
00:31:06,149 --> 00:31:03,600
questions and since we have a lot of the

738
00:31:07,830 --> 00:31:06,159

students here today we would love for uh

739
00:31:09,509 --> 00:31:07,840
them to have the opportunity to ask

740
00:31:12,950 --> 00:31:09,519
questions of the administrator and the

741
00:31:15,990 --> 00:31:12,960
other folks up here the uh the newly uh

742
00:31:18,070 --> 00:31:16,000
ordained astronauts uh with nasa

743
00:31:19,909 --> 00:31:18,080
so uh we have microphones since this is

744
00:31:21,350 --> 00:31:19,919
live on television and so that everyone

745
00:31:23,909 --> 00:31:21,360
can hear we'd like for you to raise your

746
00:31:25,590 --> 00:31:23,919
hand if you have a question please and

747
00:31:27,509 --> 00:31:25,600
then they'll bring the microphone to you

748
00:31:30,549 --> 00:31:27,519
and you can ask the question do we have

749
00:31:30,559 --> 00:31:34,470
gentlemen in the front row

750
00:31:37,909 --> 00:31:35,909
you were just trying to help help me

751
00:31:40,870 --> 00:31:37,919
help them okay uh

752
00:31:42,950 --> 00:31:40,880
is wrong yeah okay a question uh it took

753
00:31:44,389 --> 00:31:42,960
you two two years to complete training

754
00:31:51,509 --> 00:31:44,399
correct

755
00:31:57,110 --> 00:31:53,509
well he showed you stripes on the

756
00:31:59,029 --> 00:31:57,120
uniform uh so how long were you in uh

757
00:32:01,029 --> 00:31:59,039
your application went through through

758
00:32:02,870 --> 00:32:01,039
the navy and to nasa

759
00:32:03,669 --> 00:32:02,880
yes sir

760
00:32:05,509 --> 00:32:03,679
uh

761
00:32:07,590 --> 00:32:05,519
it was a long process i actually applied

762
00:32:09,029 --> 00:32:07,600
four or five or six times i lost count

763
00:32:11,750 --> 00:32:09,039

and finally got picked up on the last

764
00:32:13,750 --> 00:32:11,760
one which was a great uh a great

765
00:32:17,029 --> 00:32:13,760
surprise

766
00:32:18,870 --> 00:32:17,039
a humbling and and honored to uh to be

767
00:32:20,789 --> 00:32:18,880
part of that uh the process took

768
00:32:22,630 --> 00:32:20,799
probably about six months to get through

769
00:32:24,470 --> 00:32:22,640
through the military side and then into

770
00:32:27,590 --> 00:32:24,480
the normal process for the nasa side but

771
00:32:30,470 --> 00:32:27,600
it's uh it is very long and detailed

772
00:32:31,990 --> 00:32:30,480
process so it is a challenge to to be

773
00:32:33,669 --> 00:32:32,000
patient and continue with your everyday

774
00:32:36,549 --> 00:32:33,679
duties while you're just hoping for the

775
00:32:38,149 --> 00:32:36,559
best and trying to make things better

776
00:32:42,149 --> 00:32:38,159
the question pat down in the front row

777
00:32:50,070 --> 00:32:45,430
um have you ever discovered life forms

778
00:32:53,990 --> 00:32:51,750
well i uh told these guys that i would

779
00:32:56,149 --> 00:32:54,000
take any microbiological questions since

780
00:32:57,830 --> 00:32:56,159
that's my background so thanks that's

781
00:32:58,870 --> 00:32:57,840
actually it's a really good question

782
00:33:00,389 --> 00:32:58,880
it's something that we're very

783
00:33:03,269 --> 00:33:00,399
interested in it's actually a field

784
00:33:05,269 --> 00:33:03,279
called astrobiology and so right now

785
00:33:08,230 --> 00:33:05,279
nasa is getting ready to

786
00:33:10,470 --> 00:33:08,240
um send robots we're launching another

787
00:33:12,789 --> 00:33:10,480
robot soon to go to mars and we hope

788
00:33:14,789 --> 00:33:12,799

that humans are going to follow someday

789
00:33:17,750 --> 00:33:14,799
because we think that possibly

790
00:33:19,909 --> 00:33:17,760
discovering microbes or signs of life on

791
00:33:22,149 --> 00:33:19,919
mars could be one of the most impactful

792
00:33:24,389 --> 00:33:22,159
events in our human civilization so it's

793
00:33:26,549 --> 00:33:24,399
an excellent outstanding question

794
00:33:28,310 --> 00:33:26,559
um and and we look forward to

795
00:33:32,870 --> 00:33:28,320
researchers like yourself in the future

796
00:33:37,909 --> 00:33:35,909
what a question anybody over here

797
00:33:44,389 --> 00:33:37,919
this one back up in the back way up

798
00:33:48,389 --> 00:33:46,470
hi us nd hasselbling albert einstein

799
00:33:50,070 --> 00:33:48,399
fellow and network of educator astronaut

800
00:33:51,509 --> 00:33:50,080
teacher

801
00:33:53,750 --> 00:33:51,519
my question is what has been your

802
00:33:55,909 --> 00:33:53,760
favorite part of training

803
00:33:58,230 --> 00:33:55,919
a good one

804
00:34:01,190 --> 00:33:58,240
well uh i'll take that question and it's

805
00:34:03,029 --> 00:34:01,200
a it's a great question

806
00:34:04,870 --> 00:34:03,039
because because it's so diverse let me

807
00:34:07,430 --> 00:34:04,880
ask you when you first time around tell

808
00:34:10,310 --> 00:34:07,440
them where you came from yeah my name is

809
00:34:12,470 --> 00:34:10,320
uh chell lingard and i am a physician by

810
00:34:14,230 --> 00:34:12,480
training i train in emergency medicine

811
00:34:16,550 --> 00:34:14,240
and aerospace medicine and immediately

812
00:34:18,790 --> 00:34:16,560
prior to selection to the the astronaut

813
00:34:20,869 --> 00:34:18,800

core i was working as a flight surgeon a

814
00:34:23,030 --> 00:34:20,879
physician at nasa that takes care of

815
00:34:24,470 --> 00:34:23,040
crew members uh that's a that's a

816
00:34:26,470 --> 00:34:24,480
terrific question

817
00:34:28,230 --> 00:34:26,480
and uh i think there are two parts of it

818
00:34:29,510 --> 00:34:28,240
one of the most surprising things to me

819
00:34:31,430 --> 00:34:29,520
well maybe it's not so much of a

820
00:34:33,430 --> 00:34:31,440
surprise is that heart that nasa seems

821
00:34:37,349 --> 00:34:33,440
very hardware centric you know we

822
00:34:38,629 --> 00:34:37,359
make satellites we have rockets and

823
00:34:40,069 --> 00:34:38,639
space shuttles

824
00:34:42,470 --> 00:34:40,079
but i think one of my favorite parts of

825
00:34:44,790 --> 00:34:42,480
working at nasa are the people and we

826
00:34:46,950 --> 00:34:44,800
have an incredibly

827
00:34:48,230 --> 00:34:46,960
diverse group of folks working here at

828
00:34:50,629 --> 00:34:48,240
johnson space center and all over the

829
00:34:52,790 --> 00:34:50,639
country we have our university partners

830
00:34:54,550 --> 00:34:52,800
and you know it's the best and brightest

831
00:34:58,069 --> 00:34:54,560
that our country has to offer they're

832
00:34:59,670 --> 00:34:58,079
all so passionate about their work and

833
00:35:01,270 --> 00:34:59,680
making exploring and making things

834
00:35:03,990 --> 00:35:01,280
better for this country and i think

835
00:35:06,230 --> 00:35:04,000
that's one of my favorite things

836
00:35:07,829 --> 00:35:06,240
the other my other favorite part of the

837
00:35:09,829 --> 00:35:07,839
training has been working in the

838
00:35:11,829 --> 00:35:09,839

spacewalk training and i don't think

839
00:35:13,589 --> 00:35:11,839
that we got to those photos uh in our

840
00:35:15,589 --> 00:35:13,599
presentation but

841
00:35:17,750 --> 00:35:15,599
putting on the spacesuit and getting

842
00:35:19,510 --> 00:35:17,760
into the pool and getting a sense of

843
00:35:21,109 --> 00:35:19,520
what it must be like to to float and

844
00:35:23,589 --> 00:35:21,119
work in space

845
00:35:25,349 --> 00:35:23,599
was an amazing thing and so when i first

846
00:35:27,349 --> 00:35:25,359
had that opportunity to put the suit on

847
00:35:31,190 --> 00:35:27,359
and get into the pool my first thought

848
00:35:33,589 --> 00:35:31,200
was wow this is amazing and then about

849
00:35:35,349 --> 00:35:33,599
30 minutes into it actually after we

850
00:35:38,310 --> 00:35:35,359
started work i thought to myself wow

851
00:35:42,310 --> 00:35:39,910
it's very demanding physically and

852
00:35:44,390 --> 00:35:42,320
mentally and but it's incredibly

853
00:35:47,910 --> 00:35:44,400
valuable training and it's a real

854
00:35:51,589 --> 00:35:49,349
there's a question right up here pat

855
00:35:52,870 --> 00:35:51,599
well actually closer to you there first

856
00:35:54,710 --> 00:35:52,880
young lady

857
00:35:56,950 --> 00:35:54,720
how does it feel to be the only two

858
00:36:02,870 --> 00:35:56,960
female astronauts on the internet

859
00:36:06,230 --> 00:36:04,230
well first of all kate and i haven't

860
00:36:07,670 --> 00:36:06,240
flown yet we'd really really want to so

861
00:36:09,349 --> 00:36:07,680
we're training to do that but actually

862
00:36:10,630 --> 00:36:09,359
we've had a lot of women fly on board

863
00:36:12,630 --> 00:36:10,640

the international space station we've

864
00:36:14,790 --> 00:36:12,640
also had women as

865
00:36:16,550 --> 00:36:14,800
shuttle commanders as well in fact the

866
00:36:19,430 --> 00:36:16,560
chief of the office right now is a woman

867
00:36:21,349 --> 00:36:19,440
dr peggy whitson and then our big boss

868
00:36:24,710 --> 00:36:21,359
is dr janet cavandi

869
00:36:26,790 --> 00:36:24,720
so the great part is um is once you get

870
00:36:28,230 --> 00:36:26,800
up there you're part of one big family

871
00:36:29,589 --> 00:36:28,240
you know so it doesn't matter again what

872
00:36:32,150 --> 00:36:29,599
administrator bolden said what your

873
00:36:34,310 --> 00:36:32,160
background is where you came from

874
00:36:36,310 --> 00:36:34,320
uh what your gender is we all train the

875
00:36:38,630 --> 00:36:36,320
same we work just as hard and it's one

876
00:36:40,790 --> 00:36:38,640
big team so but there are plenty of

877
00:36:41,990 --> 00:36:40,800
women up there and we're like i said

878
00:36:43,670 --> 00:36:42,000
kate and are excited to go and we're

879
00:36:45,190 --> 00:36:43,680
training every day to go so

880
00:36:46,630 --> 00:36:45,200
i'll add a comment about peggy piggy

881
00:36:48,630 --> 00:36:46,640
whitson who's the chief of the astronaut

882
00:36:50,550 --> 00:36:48,640
office right now when i was still in the

883
00:36:53,109 --> 00:36:50,560
astronaut office peggy was was a

884
00:36:55,349 --> 00:36:53,119
principal investigator for me on my last

885
00:36:57,270 --> 00:36:55,359
flight to space which means i worked for

886
00:36:59,750 --> 00:36:57,280
her even then

887
00:37:02,790 --> 00:36:59,760
she was working on she was a

888
00:37:04,710 --> 00:37:02,800

hematologist looking at blood and trying

889
00:37:06,550 --> 00:37:04,720
had a program a project that that had to

890
00:37:08,550 --> 00:37:06,560
do with that so i worked for her then

891
00:37:11,670 --> 00:37:08,560
and she eventually became an astronaut

892
00:37:13,190 --> 00:37:11,680
and and now is the senior astronaut and

893
00:37:14,710 --> 00:37:13,200
the other thing is she was the first

894
00:37:15,829 --> 00:37:14,720
woman to come in the international space

895
00:37:19,109 --> 00:37:15,839
station so

896
00:37:25,589 --> 00:37:19,119
uh command is not limited uh to race

897
00:37:32,310 --> 00:37:27,109
who has a question

898
00:37:36,069 --> 00:37:34,230
my name is william emanuel from morgan

899
00:37:38,470 --> 00:37:36,079
state university i'm in a graduate

900
00:37:40,950 --> 00:37:38,480
student and y'all was speaking something

901
00:37:42,390 --> 00:37:40,960
about mars and are y'all planning and

902
00:37:49,109 --> 00:37:42,400
how long would it might take to get

903
00:37:53,910 --> 00:37:50,950
the planning that's going on right now

904
00:37:56,550 --> 00:37:53,920
for mars where the the target date if

905
00:37:58,630 --> 00:37:56,560
you want to say that uh was actually set

906
00:38:01,190 --> 00:37:58,640
by the president he told us that that by

907
00:38:04,390 --> 00:38:01,200
the 2030s he wants he wants nasa to have

908
00:38:06,630 --> 00:38:04,400
humans uh in martian orbit with the

909
00:38:08,230 --> 00:38:06,640
intent of landing so the heavy lift

910
00:38:10,150 --> 00:38:08,240
launch vehicle that you saw we've

911
00:38:11,670 --> 00:38:10,160
already started production on that and a

912
00:38:13,910 --> 00:38:11,680
multi-purpose crew vehicle that's going

913
00:38:16,390 --> 00:38:13,920

to be the vehicles that take us

914
00:38:18,470 --> 00:38:16,400
uh two mars to an asteroid back to the

915
00:38:21,030 --> 00:38:18,480
moon wherever we we go beyond low earth

916
00:38:23,750 --> 00:38:21,040
orbit but it today it's about an eight

917
00:38:25,030 --> 00:38:23,760
month flight to get there uh which is

918
00:38:27,589 --> 00:38:25,040
way too long

919
00:38:29,670 --> 00:38:27,599
uh so you if you if you come to work for

920
00:38:31,670 --> 00:38:29,680
us you'll find that one of the areas of

921
00:38:33,750 --> 00:38:31,680
focus there are two big areas of focus

922
00:38:35,430 --> 00:38:33,760
when we talk about mars one is trying to

923
00:38:37,430 --> 00:38:35,440
find ways to prevent damage to the

924
00:38:39,109 --> 00:38:37,440
central nervous system from radiation

925
00:38:41,349 --> 00:38:39,119
the other one is fine trying to find

926
00:38:43,349 --> 00:38:41,359
what i call game changing propulsion in

927
00:38:45,510 --> 00:38:43,359
space propulsion so that we can reduce

928
00:38:47,270 --> 00:38:45,520
the transit time from from eight months

929
00:38:49,349 --> 00:38:47,280
to something less than that half the

930
00:38:51,109 --> 00:38:49,359
time would be incredible uh an eight

931
00:38:53,270 --> 00:38:51,119
month mission there is a three m is a

932
00:38:55,270 --> 00:38:53,280
three year mission total duration

933
00:38:57,349 --> 00:38:55,280
because mars and earth kind of move you

934
00:38:59,589 --> 00:38:57,359
know away from each other for a while so

935
00:39:01,670 --> 00:38:59,599
i'd rather let you go for a year than

936
00:39:05,589 --> 00:39:01,680
three years

937
00:39:08,150 --> 00:39:06,630
one day

938
00:39:12,310 --> 00:39:08,160

you realize that you wanted to be an

939
00:39:15,990 --> 00:39:14,150
so i think there's a couple ca by the

940
00:39:18,150 --> 00:39:16,000
way my name is mark vanderheim a uh

941
00:39:20,790 --> 00:39:18,160
officer in the army i was a combat

942
00:39:22,870 --> 00:39:20,800
engineer and uh space operations officer

943
00:39:24,069 --> 00:39:22,880
before getting to work at nasa

944
00:39:25,349 --> 00:39:24,079
um

945
00:39:26,950 --> 00:39:25,359
i think there's a couple categories of

946
00:39:28,069 --> 00:39:26,960
people there's that are astronauts

947
00:39:29,750 --> 00:39:28,079
there's those that want to do it from

948
00:39:31,270 --> 00:39:29,760
when they're little tiny kids and those

949
00:39:33,670 --> 00:39:31,280
that wanted to do it

950
00:39:36,310 --> 00:39:33,680
later in life um

951
00:39:38,550 --> 00:39:36,320
and just had lots of opportunities and

952
00:39:40,150 --> 00:39:38,560
uh realized they were very fortunate i'm

953
00:39:43,349 --> 00:39:40,160
in the latter category

954
00:39:44,470 --> 00:39:43,359
um when i was a lieutenant about 20

955
00:39:46,550 --> 00:39:44,480
years ago

956
00:39:48,310 --> 00:39:46,560
my boss saw an announcement that the

957
00:39:49,910 --> 00:39:48,320
army was passing around

958
00:39:52,310 --> 00:39:49,920
saying what the minimum qualifications

959
00:39:54,310 --> 00:39:52,320
were to become an astronaut and he knew

960
00:39:56,550 --> 00:39:54,320
that i had the education background

961
00:39:58,069 --> 00:39:56,560
encouraged me to try it out um i got

962
00:40:00,230 --> 00:39:58,079
really busy with other things i talked

963
00:40:01,829 --> 00:40:00,240

to people i what i had a lot of things

964
00:40:03,109 --> 00:40:01,839
that made me think oh i won't be able to

965
00:40:04,870 --> 00:40:03,119
do it i don't have a master's degree yet

966
00:40:06,470 --> 00:40:04,880
i don't i'm not a pilot

967
00:40:07,589 --> 00:40:06,480
um and then eventually as i got close to

968
00:40:09,670 --> 00:40:07,599
this process i started thinking oh i'm

969
00:40:11,990 --> 00:40:09,680
too old and my wife said you gotta try

970
00:40:13,990 --> 00:40:12,000
so i tried um

971
00:40:16,470 --> 00:40:14,000
the time i really knew that i wanted to

972
00:40:17,990 --> 00:40:16,480
do this job more than any other job was

973
00:40:19,990 --> 00:40:18,000
when i was actually working at nasa and

974
00:40:21,990 --> 00:40:20,000
realized what it was all about

975
00:40:24,390 --> 00:40:22,000
the people are amazing

976
00:40:26,550 --> 00:40:24,400
the people that are in my class i think

977
00:40:27,910 --> 00:40:26,560
got selected because there are people

978
00:40:30,790 --> 00:40:27,920
that you would love to go camping with

979
00:40:32,150 --> 00:40:30,800
if you're stuck someplace for six months

980
00:40:33,510 --> 00:40:32,160
this is a good group of people to be in

981
00:40:35,030 --> 00:40:33,520
that situation with

982
00:40:39,109 --> 00:40:35,040
and it's a really neat environment to

983
00:40:45,670 --> 00:40:40,630
mark is a great guy to go camping with

984
00:40:49,990 --> 00:40:47,589
that there's two young men down here and

985
00:40:53,990 --> 00:40:50,000
a young lady right back there too

986
00:40:55,030 --> 00:40:54,000
what is like the space station like

987
00:40:57,109 --> 00:40:55,040
you're probably the only one who can

988
00:40:58,790 --> 00:40:57,119

answer that question

989
00:41:01,190 --> 00:40:58,800
janet

990
00:41:03,190 --> 00:41:01,200
well the space station is really a very

991
00:41:04,630 --> 00:41:03,200
very interesting place it's very large

992
00:41:07,270 --> 00:41:04,640
probably larger than you would realize

993
00:41:09,910 --> 00:41:07,280
bigger than most houses are possibly

994
00:41:11,670 --> 00:41:09,920
we've got several laboratories in orbit

995
00:41:13,910 --> 00:41:11,680
in the space station we've got a russian

996
00:41:15,349 --> 00:41:13,920
section we have a japanese module we

997
00:41:17,510 --> 00:41:15,359
have a european module you have the

998
00:41:19,510 --> 00:41:17,520
united states module and all of those

999
00:41:20,790 --> 00:41:19,520
have laboratory facilities in them so

1000
00:41:22,870 --> 00:41:20,800
we're conducting a lot of different

1001
00:41:24,630 --> 00:41:22,880
scientific research and of course it's

1002
00:41:26,309 --> 00:41:24,640
it's really fun to do science in space

1003
00:41:28,470 --> 00:41:26,319
because you get to float while you're

1004
00:41:30,550 --> 00:41:28,480
doing your work in space and you also

1005
00:41:32,390 --> 00:41:30,560
have airlocks so you can go outside and

1006
00:41:35,349 --> 00:41:32,400
do space walks from the international

1007
00:41:37,910 --> 00:41:35,359
space station there are gigantic robotic

1008
00:41:39,990 --> 00:41:37,920
arms on the space station multiple ones

1009
00:41:42,390 --> 00:41:40,000
that we use to operate and move

1010
00:41:43,990 --> 00:41:42,400
different portions of the payloads or

1011
00:41:46,470 --> 00:41:44,000
different parts of modules from one

1012
00:41:48,390 --> 00:41:46,480
location to another location and we

1013
00:41:49,990 --> 00:41:48,400

train all that on the ground before we

1014
00:41:51,750 --> 00:41:50,000
launch and then when we get up there we

1015
00:41:54,309 --> 00:41:51,760
get to operate all those different

1016
00:41:55,510 --> 00:41:54,319
different arms and and modules and and

1017
00:41:57,430 --> 00:41:55,520
everything else and and all the

1018
00:41:59,190 --> 00:41:57,440
different science so it's really an

1019
00:42:00,950 --> 00:41:59,200
interesting place i think the probably

1020
00:42:02,950 --> 00:42:00,960
the most interesting thing is when

1021
00:42:04,390 --> 00:42:02,960
you're approaching the space station

1022
00:42:07,030 --> 00:42:04,400
from your vehicle whether it be the

1023
00:42:09,750 --> 00:42:07,040
soyuz or shuttle that's how you supply

1024
00:42:12,470 --> 00:42:09,760
um you see just a big star on the

1025
00:42:14,150 --> 00:42:12,480
horizon and and you know that that can't

1026
00:42:16,230 --> 00:42:14,160
be it can it and and then it starts to

1027
00:42:18,069 --> 00:42:16,240
get bigger and it gets bigger and then

1028
00:42:19,670 --> 00:42:18,079
it starts to have a form to it and then

1029
00:42:21,589 --> 00:42:19,680
you can start to recognize the solar

1030
00:42:23,870 --> 00:42:21,599
arrays and then you get closer and you

1031
00:42:26,870 --> 00:42:23,880
get closer and then it turns into this

1032
00:42:29,510 --> 00:42:26,880
monstrosity of a vehicle up there that

1033
00:42:31,910 --> 00:42:29,520
you just cannot believe that humans

1034
00:42:34,150 --> 00:42:31,920
actually built that space station and

1035
00:42:35,910 --> 00:42:34,160
put it up there and we actually live in

1036
00:42:38,230 --> 00:42:35,920
it all the time and we conduct

1037
00:42:41,109 --> 00:42:38,240
experiments on it it's just an amazing

1038
00:42:45,349 --> 00:42:41,119

tribute to what humanity can do

1039
00:42:45,359 --> 00:42:50,790
there's another one way back there

1040
00:42:53,910 --> 00:42:51,829
thank you

1041
00:42:55,990 --> 00:42:53,920
hi my name is april lanat and i'm an

1042
00:42:58,230 --> 00:42:56,000
einstein fellow here at nasa and i was

1043
00:43:00,470 --> 00:42:58,240
wondering if for all of you if you were

1044
00:43:02,390 --> 00:43:00,480
all interested in math and science

1045
00:43:09,349 --> 00:43:02,400
in middle school and high school or did

1046
00:43:15,030 --> 00:43:12,870
uh for me i think

1047
00:43:16,950 --> 00:43:15,040
i always did okay with math and i think

1048
00:43:18,309 --> 00:43:16,960
because uh teachers said hey good job i

1049
00:43:20,230 --> 00:43:18,319
think i said i want to get hear that

1050
00:43:22,470 --> 00:43:20,240
more often so i kept studying it

1051
00:43:24,630 --> 00:43:22,480
um so yeah i did have an affinity for

1052
00:43:27,589 --> 00:43:24,640
math and i really enjoy it i like i

1053
00:43:30,630 --> 00:43:27,599
liked being able to learn a process and

1054
00:43:32,950 --> 00:43:30,640
try to find it was like solving a puzzle

1055
00:43:34,550 --> 00:43:32,960
just digging through things and uh doing

1056
00:43:37,430 --> 00:43:34,560
things right and then getting the right

1057
00:43:41,990 --> 00:43:40,230
i grew up with a strong interest in stem

1058
00:43:43,910 --> 00:43:42,000
topics but i went to a vocational high

1059
00:43:45,589 --> 00:43:43,920
school so i looked at it

1060
00:43:47,510 --> 00:43:45,599
from a systems perspective on taking

1061
00:43:49,430 --> 00:43:47,520
things apart fixing them making them

1062
00:43:51,510 --> 00:43:49,440
better and redesigning

1063
00:43:53,829 --> 00:43:51,520

and making better systems

1064
00:43:55,990 --> 00:43:53,839
and as i got further into school and

1065
00:43:58,390 --> 00:43:56,000
into undergraduate than graduate school

1066
00:44:01,270 --> 00:43:58,400
found myself excelling and wanting more

1067
00:44:03,990 --> 00:44:01,280
and more of stem type education for that

1068
00:44:07,670 --> 00:44:04,000
so while it started young it grew and

1069
00:44:11,990 --> 00:44:10,309
well as my mom would tell you um i often

1070
00:44:13,589 --> 00:44:12,000
repurposed her tupperwares for

1071
00:44:14,870 --> 00:44:13,599
collecting bugs and the like in the

1072
00:44:16,950 --> 00:44:14,880
backyard

1073
00:44:18,630 --> 00:44:16,960
so um i i remember being an

1074
00:44:20,790 --> 00:44:18,640
experimentalist from a very young age

1075
00:44:23,349 --> 00:44:20,800
i'm a i'm a biologist

1076
00:44:25,109 --> 00:44:23,359
and hand in hand with that goes

1077
00:44:27,030 --> 00:44:25,119
math and chemistry

1078
00:44:29,270 --> 00:44:27,040
and i really started to enjoy late in

1079
00:44:30,710 --> 00:44:29,280
junior high and in high school when all

1080
00:44:32,710 --> 00:44:30,720
that started to come together and you

1081
00:44:34,950 --> 00:44:32,720
realize how the math that you're

1082
00:44:36,790 --> 00:44:34,960
learning might apply to physics it might

1083
00:44:38,550 --> 00:44:36,800
apply to biology and chemistry and so

1084
00:44:39,750 --> 00:44:38,560
the intersection of all those fields i

1085
00:44:41,670 --> 00:44:39,760
found to be

1086
00:44:45,349 --> 00:44:41,680
really interesting but bug collecting is

1087
00:44:49,109 --> 00:44:46,870
well i think

1088
00:44:50,390 --> 00:44:49,119

we all share that passion for the

1089
00:44:52,309 --> 00:44:50,400
sciences and

1090
00:44:53,990 --> 00:44:52,319
that's one of the reasons that

1091
00:44:55,190 --> 00:44:54,000
we have a privilege of of working with

1092
00:44:57,109 --> 00:44:55,200
nasa now

1093
00:44:59,109 --> 00:44:57,119
but it really also speaks to the

1094
00:45:00,470 --> 00:44:59,119
educators that we're so happy are in the

1095
00:45:03,670 --> 00:45:00,480
audience here today and then also the

1096
00:45:05,910 --> 00:45:03,680
students um i think all of us can

1097
00:45:09,109 --> 00:45:05,920
probably have memories of of one or two

1098
00:45:11,190 --> 00:45:09,119
or many educators or instructors or

1099
00:45:13,670 --> 00:45:11,200
teachers or mentors in our life that

1100
00:45:16,470 --> 00:45:13,680
sparked that passion for science and for

1101
00:45:19,270 --> 00:45:16,480
for math or engineering for exploring

1102
00:45:20,470 --> 00:45:19,280
and uh and that's so important and and

1103
00:45:22,230 --> 00:45:20,480
so it's a

1104
00:45:24,309 --> 00:45:22,240
it's great to have educators and

1105
00:45:26,470 --> 00:45:24,319
teachers and those students here here

1106
00:45:31,030 --> 00:45:26,480
today to to join us as we announce this

1107
00:45:33,670 --> 00:45:32,470
you got a question in the rear of the

1108
00:45:35,750 --> 00:45:33,680
auditorium

1109
00:45:37,910 --> 00:45:35,760
uh greetings everyone my name is julian

1110
00:45:39,990 --> 00:45:37,920
barnes i am a fourth year architecture

1111
00:45:42,069 --> 00:45:40,000
student at howard university

1112
00:45:43,750 --> 00:45:42,079
and uh my question is directed towards

1113
00:45:44,710 --> 00:45:43,760

the engineers

1114
00:45:48,950 --> 00:45:44,720
um

1115
00:45:50,230 --> 00:45:48,960
of what responsibilities you have on a

1116
00:45:51,510 --> 00:45:50,240
daily basis

1117
00:45:53,829 --> 00:45:51,520
um

1118
00:45:56,069 --> 00:45:53,839
in regards to engineering or as you

1119
00:45:59,670 --> 00:45:56,079
mentioned uh the stem stem research and

1120
00:46:03,030 --> 00:46:01,270
you mean on board

1121
00:46:05,349 --> 00:46:03,040
daily activities yes so daily activities

1122
00:46:07,030 --> 00:46:05,359
on board the iss span everything from

1123
00:46:09,190 --> 00:46:07,040
running scientific experiments which the

1124
00:46:11,829 --> 00:46:09,200
number of which has really increased

1125
00:46:14,309 --> 00:46:11,839
um since we finished construction

1126
00:46:15,750 --> 00:46:14,319
um also like i mentioned before the iss

1127
00:46:17,030 --> 00:46:15,760
it's like a house that you love and so

1128
00:46:18,630 --> 00:46:17,040
sometimes repairs need to be made

1129
00:46:21,030 --> 00:46:18,640
sometimes the toilet breaks you got to

1130
00:46:22,470 --> 00:46:21,040
fix the toilet so you're making repairs

1131
00:46:23,990 --> 00:46:22,480
onboard the state the space station as

1132
00:46:25,910 --> 00:46:24,000
well and we've got a huge group of

1133
00:46:27,750 --> 00:46:25,920
people on the ground not only the

1134
00:46:29,990 --> 00:46:27,760
mission control

1135
00:46:31,670 --> 00:46:30,000
in houston texas but also all across the

1136
00:46:33,829 --> 00:46:31,680
world that helps coordinate these

1137
00:46:35,670 --> 00:46:33,839
activities on a day-to-day basis

1138
00:46:37,430 --> 00:46:35,680

we also do medical experiments on board

1139
00:46:39,190 --> 00:46:37,440
the iss we make sure that our crew

1140
00:46:40,550 --> 00:46:39,200
members stay in good medical health

1141
00:46:42,950 --> 00:46:40,560
sometimes that involves things like

1142
00:46:43,910 --> 00:46:42,960
blood draws or testing saliva

1143
00:46:46,390 --> 00:46:43,920
so

1144
00:46:50,390 --> 00:46:46,400
honestly the range of activities it's

1145
00:46:52,309 --> 00:46:50,400
almost never the same you're always busy

1146
00:46:54,069 --> 00:46:52,319
one important fact and one thing to keep

1147
00:46:56,150 --> 00:46:54,079
in mind is that iss crew members are a

1148
00:46:58,230 --> 00:46:56,160
lot of two hours of exercise daily

1149
00:46:59,589 --> 00:46:58,240
onboard the iss so just because you you

1150
00:47:01,190 --> 00:46:59,599
did all this hard work and training

1151
00:47:02,790 --> 00:47:01,200
doesn't mean that once you get up to iss

1152
00:47:05,190 --> 00:47:02,800
you stop going to the gym

1153
00:47:07,270 --> 00:47:05,200
exercise is important so for one hour

1154
00:47:08,870 --> 00:47:07,280
every day they either run on a treadmill

1155
00:47:10,630 --> 00:47:08,880
or they're on a special exercise bike

1156
00:47:12,230 --> 00:47:10,640
that we have built on the station

1157
00:47:13,109 --> 00:47:12,240
and for another hour they're lifting

1158
00:47:14,470 --> 00:47:13,119
weights

1159
00:47:16,630 --> 00:47:14,480
so they got to stay healthy and the

1160
00:47:18,630 --> 00:47:16,640
reason is is once you get up there

1161
00:47:20,790 --> 00:47:18,640
and we don't have gravity anymore

1162
00:47:22,950 --> 00:47:20,800
your muscles tend to shrink a little bit

1163
00:47:24,470 --> 00:47:22,960

your bones you tend to lose bone density

1164
00:47:26,549 --> 00:47:24,480
so we're trying to keep our astronauts

1165
00:47:28,150 --> 00:47:26,559
as healthy as they can be over that

1166
00:47:30,069 --> 00:47:28,160
six-month period so when they get back

1167
00:47:32,870 --> 00:47:30,079
down to earth they're able to stand up

1168
00:47:36,309 --> 00:47:34,790
his question i think also dealt with

1169
00:47:38,630 --> 00:47:36,319
what do you do

1170
00:47:40,309 --> 00:47:38,640
daily here on earth because you're not

1171
00:47:41,430 --> 00:47:40,319
just waiting to fly what what kind of

1172
00:47:43,109 --> 00:47:41,440
what are some of the things the

1173
00:47:44,710 --> 00:47:43,119
assignments that your class has gotten

1174
00:47:46,230 --> 00:47:44,720
already

1175
00:47:48,790 --> 00:47:46,240
well i'll start off um since my

1176
00:47:50,390 --> 00:47:48,800
background is a physician um a lot of

1177
00:47:52,549 --> 00:47:50,400
things i work on on a daily basis is

1178
00:47:55,109 --> 00:47:52,559
with the medical branch in the astronaut

1179
00:47:57,670 --> 00:47:55,119
office so any issue that may pertain to

1180
00:47:58,549 --> 00:47:57,680
crew health or medical experiments on

1181
00:47:59,990 --> 00:47:58,559
board

1182
00:48:01,270 --> 00:48:00,000
they like to have the astronaut office

1183
00:48:02,710 --> 00:48:01,280
buying we like to make sure it's safe

1184
00:48:04,230 --> 00:48:02,720
for our crew members if we've got a new

1185
00:48:06,870 --> 00:48:04,240
procedure for example to do an

1186
00:48:08,710 --> 00:48:06,880
ultrasound of an eye on orbit which we

1187
00:48:10,309 --> 00:48:08,720
do routinely now we want to make sure

1188
00:48:12,150 --> 00:48:10,319

that that procedure is easy to read for

1189
00:48:14,549 --> 00:48:12,160
crew members on orbit and that it's safe

1190
00:48:16,630 --> 00:48:14,559
so i'll often bring that past

1191
00:48:18,069 --> 00:48:16,640
a medical doctor within the office

1192
00:48:19,589 --> 00:48:18,079
i also work within the station

1193
00:48:22,150 --> 00:48:19,599
operations branch

1194
00:48:23,670 --> 00:48:22,160
so station operations deals with any

1195
00:48:25,750 --> 00:48:23,680
operations that station members may have

1196
00:48:27,750 --> 00:48:25,760
to go through on a daily basis things

1197
00:48:30,230 --> 00:48:27,760
like bringing up medical kits

1198
00:48:31,349 --> 00:48:30,240
food that we eat on orbit

1199
00:48:34,630 --> 00:48:31,359
trying to make sure it's the healthiest

1200
00:48:35,990 --> 00:48:34,640
food we can with a low salt content

1201
00:48:39,829 --> 00:48:36,000
so projects like that and that's what i

1202
00:48:44,950 --> 00:48:41,990
i also come from a medical background so

1203
00:48:47,349 --> 00:48:44,960
i work with serena in the medical branch

1204
00:48:49,270 --> 00:48:47,359
but i also work in the extra

1205
00:48:51,910 --> 00:48:49,280
activity branch the space walking branch

1206
00:48:54,069 --> 00:48:51,920
i review policies procedures hardware

1207
00:48:57,030 --> 00:48:54,079
and then use my medical expertise to

1208
00:48:58,549 --> 00:48:57,040
evaluate ways that we can prevent injury

1209
00:49:00,309 --> 00:48:58,559
again the suit is

1210
00:49:02,470 --> 00:49:00,319
it's an amazing piece of hardware

1211
00:49:04,870 --> 00:49:02,480
amazing piece of equipment but it's also

1212
00:49:07,270 --> 00:49:04,880
hard on the body and so one of my jobs

1213
00:49:09,589 --> 00:49:07,280

is to evaluate ways that we can

1214
00:49:11,430 --> 00:49:09,599
avoid injury and i work as a capcom in

1215
00:49:13,349 --> 00:49:11,440
the capcom branch and a capcom is a

1216
00:49:15,430 --> 00:49:13,359
capsule communicator

1217
00:49:17,109 --> 00:49:15,440
since the beginning of human space

1218
00:49:18,870 --> 00:49:17,119
flight we've had somebody

1219
00:49:20,069 --> 00:49:18,880
in mission control that

1220
00:49:21,430 --> 00:49:20,079
works to

1221
00:49:23,109 --> 00:49:21,440
essentially talk with the folks that are

1222
00:49:25,349 --> 00:49:23,119
in orbit to talk with the folks on the

1223
00:49:27,829 --> 00:49:25,359
vehicle and so i have the opportunity to

1224
00:49:29,030 --> 00:49:27,839
work in mission control and speak with

1225
00:49:32,390 --> 00:49:29,040
the astronauts that are currently

1226
00:49:35,670 --> 00:49:33,829
so one of the really neat things about

1227
00:49:38,549 --> 00:49:35,680
our office is we all come in from

1228
00:49:40,309 --> 00:49:38,559
different backgrounds but once we start

1229
00:49:42,230 --> 00:49:40,319
getting into our jobs and we finished

1230
00:49:44,150 --> 00:49:42,240
our initial period of training we can

1231
00:49:45,990 --> 00:49:44,160
often do things that are completely

1232
00:49:47,829 --> 00:49:46,000
different from what we previously

1233
00:49:50,390 --> 00:49:47,839
trained on so i'm not an engineer by

1234
00:49:52,549 --> 00:49:50,400
training i'm a i'm a biologist but i get

1235
00:49:54,309 --> 00:49:52,559
to work with the systems engineers and i

1236
00:49:56,549 --> 00:49:54,319
work in the station integration branch

1237
00:49:58,470 --> 00:49:56,559
and so we try to figure out how we are

1238
00:50:00,710 --> 00:49:58,480

integrating all of the different systems

1239
00:50:02,470 --> 00:50:00,720
and things that could affect the crew on

1240
00:50:04,549 --> 00:50:02,480
orbit so for example when you make one

1241
00:50:06,150 --> 00:50:04,559
change to the computer system how does

1242
00:50:08,790 --> 00:50:06,160
that affect the power system and the

1243
00:50:12,309 --> 00:50:08,800
electrical system how do we

1244
00:50:13,910 --> 00:50:12,319
manage our our water recycling um and

1245
00:50:15,910 --> 00:50:13,920
some really interesting problems

1246
00:50:17,190 --> 00:50:15,920
actually uh one of my favorite parts is

1247
00:50:18,950 --> 00:50:17,200
that the things we're working on the

1248
00:50:20,870 --> 00:50:18,960
space station have a direct application

1249
00:50:22,950 --> 00:50:20,880
to earth so if you think about

1250
00:50:24,549 --> 00:50:22,960
developing countries and recycling water

1251
00:50:26,150 --> 00:50:24,559
these kinds of closed loop systems that

1252
00:50:28,230 --> 00:50:26,160
we're developing could have a lot of

1253
00:50:30,230 --> 00:50:28,240
potential applications so

1254
00:50:32,069 --> 00:50:30,240
the the things we do on orbit can can be

1255
00:50:33,910 --> 00:50:32,079
very cross-disciplinary we train like

1256
00:50:36,390 --> 00:50:33,920
that here on the ground too

1257
00:50:38,630 --> 00:50:36,400
and uh we're finding some really really

1258
00:50:40,390 --> 00:50:38,640
neat solutions to everyday problems here

1259
00:50:42,549 --> 00:50:40,400
on earth

1260
00:50:43,589 --> 00:50:42,559
there's a lot of engineering going on

1261
00:50:45,270 --> 00:50:43,599
right now

1262
00:50:48,470 --> 00:50:45,280
i have an engineering background and

1263
00:50:49,910 --> 00:50:48,480

also a navy flight test background

1264
00:50:52,630 --> 00:50:49,920
currently working in the exploration

1265
00:50:55,190 --> 00:50:52,640
branch and we have tons of people

1266
00:50:56,790 --> 00:50:55,200
interfacing with our commercial partners

1267
00:50:59,349 --> 00:50:56,800
in the development of our new commercial

1268
00:51:01,349 --> 00:50:59,359
vehicles we're also working very hard on

1269
00:51:03,750 --> 00:51:01,359
all the engineering and development of

1270
00:51:05,030 --> 00:51:03,760
our mpcv and our sls

1271
00:51:05,990 --> 00:51:05,040
system that will bring us into the

1272
00:51:07,510 --> 00:51:06,000
future

1273
00:51:10,390 --> 00:51:07,520
so there's a lot going on we're

1274
00:51:15,190 --> 00:51:10,400
extremely busy and engineering and stem

1275
00:51:19,990 --> 00:51:17,430
i work in the station integration branch

1276
00:51:21,990 --> 00:51:20,000
and in that branch i'm uh i help out

1277
00:51:23,829 --> 00:51:22,000
with visiting vehicles so like chell

1278
00:51:26,309 --> 00:51:23,839
mentioned about capcoms

1279
00:51:28,309 --> 00:51:26,319
when the htv a japanese cargo vehicle

1280
00:51:29,990 --> 00:51:28,319
visit this visits the space station

1281
00:51:32,710 --> 00:51:30,000
there's a capcom that works during that

1282
00:51:34,790 --> 00:51:32,720
or multiple capcoms and in anticipation

1283
00:51:36,230 --> 00:51:34,800
of doing that job i am

1284
00:51:38,950 --> 00:51:36,240
doing simulations with the rest of the

1285
00:51:41,750 --> 00:51:38,960
mission control team to prepare for that

1286
00:51:43,190 --> 00:51:41,760
uh i also help out i mentioned payloads

1287
00:51:44,790 --> 00:51:43,200
there's we talked about the science

1288
00:51:45,910 --> 00:51:44,800

that's up on the space station right now

1289
00:51:48,150 --> 00:51:45,920
well

1290
00:51:50,150 --> 00:51:48,160
that's that science has a development

1291
00:51:52,390 --> 00:51:50,160
process before it gets up on the space

1292
00:51:55,589 --> 00:51:52,400
station so i get to actually see

1293
00:51:56,950 --> 00:51:55,599
and give crew input to how those um crew

1294
00:51:58,390 --> 00:51:56,960
interfaces are developed for some of

1295
00:52:00,870 --> 00:51:58,400
those payloads

1296
00:52:02,470 --> 00:52:00,880
and shell also mentioned the uh

1297
00:52:04,630 --> 00:52:02,480
i'm not in the in the space walking

1298
00:52:06,230 --> 00:52:04,640
branch but all of us get called on to

1299
00:52:08,069 --> 00:52:06,240
get back in that pool

1300
00:52:09,990 --> 00:52:08,079
and help out with developing some

1301
00:52:11,670 --> 00:52:10,000
procedures for the crew that is up in

1302
00:52:13,589 --> 00:52:11,680
space and may have to do a repair so i

1303
00:52:15,670 --> 00:52:13,599
really enjoy getting do that and all of

1304
00:52:17,670 --> 00:52:15,680
us no matter what branch we're in we've

1305
00:52:19,349 --> 00:52:17,680
got to continue flying we're studying

1306
00:52:21,510 --> 00:52:19,359
russian

1307
00:52:23,589 --> 00:52:21,520
and i mentioned eva we're got to keep up

1308
00:52:26,549 --> 00:52:23,599
on robotics there's lots of things that

1309
00:52:28,150 --> 00:52:26,559
really keep us busy

1310
00:52:33,750 --> 00:52:28,160
very patient young lady over here who's

1311
00:52:39,430 --> 00:52:36,710
hello my name is jade and i have two

1312
00:52:42,710 --> 00:52:39,440
questions and my first question is

1313
00:52:45,109 --> 00:52:42,720

what hardships and challenges

1314
00:52:47,190 --> 00:52:45,119
happened like when you when in your

1315
00:52:50,390 --> 00:52:47,200
training and my second question is if

1316
00:52:52,470 --> 00:52:50,400
the asteroid or any other

1317
00:52:54,309 --> 00:52:52,480
emergency came your way

1318
00:52:59,589 --> 00:52:54,319
what would be your first thought of

1319
00:53:04,150 --> 00:53:00,950
i'm going to answer your second question

1320
00:53:08,630 --> 00:53:07,270
because i can still remember that one

1321
00:53:11,109 --> 00:53:08,640
so one of the things we do with the

1322
00:53:13,430 --> 00:53:11,119
space station is we practice uh how to

1323
00:53:15,829 --> 00:53:13,440
react to an emergency like that

1324
00:53:17,270 --> 00:53:15,839
so our response to what we would call a

1325
00:53:18,630 --> 00:53:17,280
depressurization let's say something

1326
00:53:20,710 --> 00:53:18,640
hits the space station and we start

1327
00:53:22,710 --> 00:53:20,720
losing air breathable air out of the

1328
00:53:24,549 --> 00:53:22,720
space station we have sensors to detect

1329
00:53:26,069 --> 00:53:24,559
that and our response is to start

1330
00:53:28,069 --> 00:53:26,079
dividing the space station up into

1331
00:53:30,390 --> 00:53:28,079
pieces so we can isolate where that leak

1332
00:53:32,549 --> 00:53:30,400
is and then as we further ice further

1333
00:53:33,349 --> 00:53:32,559
divide up the space station into pieces

1334
00:53:35,910 --> 00:53:33,359
we can

1335
00:53:38,549 --> 00:53:35,920
um hopefully identify exactly where that

1336
00:53:39,990 --> 00:53:38,559
leak is if there's enough time

1337
00:53:42,069 --> 00:53:40,000
we'd stay on board and fix it if there's

1338
00:53:43,510 --> 00:53:42,079

not enough time if it's really bad we

1339
00:53:45,270 --> 00:53:43,520
might have to abandon ship and come back

1340
00:53:50,710 --> 00:53:45,280
on the soyuz because that's the only

1341
00:53:55,109 --> 00:53:53,510
so and uh just along the lines that mark

1342
00:53:57,270 --> 00:53:55,119
was mentioning we do spend a lot of time

1343
00:53:59,349 --> 00:53:57,280
thinking about

1344
00:54:00,390 --> 00:53:59,359
how to prepare for for emergencies and

1345
00:54:02,549 --> 00:54:00,400
so

1346
00:54:04,230 --> 00:54:02,559
a lot of our time is spent in the pool

1347
00:54:06,390 --> 00:54:04,240
doing during spacewalks figuring out

1348
00:54:07,829 --> 00:54:06,400
what we would do if we had an emergency

1349
00:54:09,990 --> 00:54:07,839
we think about that when we're flying in

1350
00:54:11,589 --> 00:54:10,000
the aircraft in the t-38 jet and that's

1351
00:54:12,630 --> 00:54:11,599
one of the main reasons we fly is so

1352
00:54:14,470 --> 00:54:12,640
that we

1353
00:54:16,069 --> 00:54:14,480
are working in a

1354
00:54:17,990 --> 00:54:16,079
very

1355
00:54:20,069 --> 00:54:18,000
not necessarily dangerous but in what we

1356
00:54:21,829 --> 00:54:20,079
call an operational environment where

1357
00:54:24,390 --> 00:54:21,839
the decisions have a lot of impact and

1358
00:54:26,710 --> 00:54:24,400
so it helps us in our decision making we

1359
00:54:29,190 --> 00:54:26,720
recognize the decisions that we make can

1360
00:54:30,870 --> 00:54:29,200
have important consequences so

1361
00:54:33,349 --> 00:54:30,880
throughout all the jobs all the training

1362
00:54:35,270 --> 00:54:33,359
that we do we think about um how would

1363
00:54:36,630 --> 00:54:35,280

we how would we react in an emergency

1364
00:54:37,910 --> 00:54:36,640
and it's a big part of our training and

1365
00:54:41,030 --> 00:54:37,920
that's it so that's a really great

1366
00:54:42,309 --> 00:54:41,040
question as for the the hardships um you

1367
00:54:44,630 --> 00:54:42,319
know i think that we've all come from

1368
00:54:47,750 --> 00:54:44,640
backgrounds where we've experienced a

1369
00:54:49,670 --> 00:54:47,760
lot of challenges and a lot of hardship

1370
00:54:52,789 --> 00:54:49,680
for myself i was an emergency medicine

1371
00:54:54,230 --> 00:54:52,799
doctor for several years and so you see

1372
00:54:55,990 --> 00:54:54,240
a lot of working in the emergency

1373
00:54:57,270 --> 00:54:56,000
department you see a lot of uh tough

1374
00:54:59,589 --> 00:54:57,280
things going on

1375
00:55:01,030 --> 00:54:59,599
and you work through those and i think

1376
00:55:03,990 --> 00:55:01,040
in all of our past we've worked through

1377
00:55:06,789 --> 00:55:04,000
some some tough circumstances and we

1378
00:55:08,390 --> 00:55:06,799
bring that experience to

1379
00:55:10,150 --> 00:55:08,400
the astronaut office so that while we

1380
00:55:12,470 --> 00:55:10,160
were going through our training

1381
00:55:15,990 --> 00:55:12,480
during these past two years we were able

1382
00:55:17,910 --> 00:55:16,000
to bring that tenacity and

1383
00:55:19,349 --> 00:55:17,920
discipline and will to work through any

1384
00:55:21,589 --> 00:55:19,359
issues that we had

1385
00:55:23,510 --> 00:55:21,599
i don't recall any specific things that

1386
00:55:26,470 --> 00:55:23,520
were very that you know that stand out

1387
00:55:27,990 --> 00:55:26,480
as one really really difficult part but

1388
00:55:30,150 --> 00:55:28,000

learning the russian language for for

1389
00:55:31,430 --> 00:55:30,160
instance is uh is a challenge for me and

1390
00:55:33,750 --> 00:55:31,440
what that means to me is that i need to

1391
00:55:35,510 --> 00:55:33,760
work harder on that and so i'm sure that

1392
00:55:36,710 --> 00:55:35,520
in your own experiences in school you

1393
00:55:38,710 --> 00:55:36,720
might encounter something that is

1394
00:55:41,270 --> 00:55:38,720
difficult maybe a little challenging for

1395
00:55:43,190 --> 00:55:41,280
you as well and what that should do is

1396
00:55:44,870 --> 00:55:43,200
help you make the decision and

1397
00:55:46,230 --> 00:55:44,880
recognize that that's a difficult thing

1398
00:55:48,549 --> 00:55:46,240
for you and help you to focus your

1399
00:55:50,309 --> 00:55:48,559
efforts and maybe find help to work on

1400
00:55:52,710 --> 00:55:50,319
that issue so you can get through it as

1401
00:55:58,309 --> 00:55:55,349
okay we have a question over here

1402
00:56:02,309 --> 00:55:58,319
was it intense and very unbearable when

1403
00:56:05,349 --> 00:56:03,349
could you repeat that did you repeat

1404
00:56:06,870 --> 00:56:05,359
that we didn't was it intense or embarra

1405
00:56:09,270 --> 00:56:06,880
unbearable when you were in training

1406
00:56:12,549 --> 00:56:11,190
terrible it was actually pretty fun i

1407
00:56:14,710 --> 00:56:12,559
assume you're talking about survival

1408
00:56:17,030 --> 00:56:14,720
training in the in the woods you saw

1409
00:56:18,390 --> 00:56:17,040
some of those pictures that was uh that

1410
00:56:20,309 --> 00:56:18,400
was really fun it was a little bit

1411
00:56:22,230 --> 00:56:20,319
challenging it gets cold and it gets wet

1412
00:56:23,670 --> 00:56:22,240
uh but again a little bit a little bit

1413
00:56:25,349 --> 00:56:23,680

of stress is good for you makes you

1414
00:56:26,789 --> 00:56:25,359
think about things in a different way

1415
00:56:28,390 --> 00:56:26,799
and it was really fun to get out there

1416
00:56:30,549 --> 00:56:28,400
and plus again like i said earlier we

1417
00:56:33,910 --> 00:56:30,559
had mark making cookies for us so

1418
00:56:37,109 --> 00:56:35,829
hi my name is amy misa i'm a graduate

1419
00:56:39,030 --> 00:56:37,119
student at the university of maryland in

1420
00:56:40,870 --> 00:56:39,040
the national institute of aerospace and

1421
00:56:44,549 --> 00:56:40,880
my question is to you administrator

1422
00:56:45,829 --> 00:56:44,559
bolden then you lose the mic

1423
00:56:48,069 --> 00:56:45,839
i've been trying to help you out here

1424
00:56:49,990 --> 00:56:48,079
and you're gonna ask me a question so

1425
00:56:52,309 --> 00:56:50,000
what other game challenging technologies

1426
00:56:54,710 --> 00:56:52,319
besides propulsion that you think oh uh

1427
00:56:58,309 --> 00:56:54,720
scientists and engineers to pursue to

1428
00:57:00,069 --> 00:56:58,319
help uh nasa go into the future very

1429
00:57:01,990 --> 00:57:00,079
strongly i you know they've mentioned

1430
00:57:03,910 --> 00:57:02,000
several things that we do on station

1431
00:57:05,430 --> 00:57:03,920
water recycling we've got a satellite

1432
00:57:07,910 --> 00:57:05,440
right now called juno on its way to

1433
00:57:09,349 --> 00:57:07,920
jupiter uh that is absolutely incredible

1434
00:57:11,430 --> 00:57:09,359
and people say okay what's the big deal

1435
00:57:13,829 --> 00:57:11,440
about a satellite going to jupiter it's

1436
00:57:15,750 --> 00:57:13,839
solar powered it's got solar cells on it

1437
00:57:18,230 --> 00:57:15,760
we've never been able to send a

1438
00:57:20,470 --> 00:57:18,240

satellite to a deep uh you know a

1439
00:57:22,630 --> 00:57:20,480
distant planet with other than nuclear

1440
00:57:24,710 --> 00:57:22,640
power and this one has solar cells

1441
00:57:26,870 --> 00:57:24,720
because the technology is such that we

1442
00:57:28,549 --> 00:57:26,880
now have solar cells that we think can

1443
00:57:31,190 --> 00:57:28,559
survive the radiation environment of

1444
00:57:33,670 --> 00:57:31,200
getting there but also can take the very

1445
00:57:36,150 --> 00:57:33,680
very faint light of the sun at that

1446
00:57:38,150 --> 00:57:36,160
distance and produce electricity to the

1447
00:57:39,750 --> 00:57:38,160
extent that it gives us more power than

1448
00:57:41,510 --> 00:57:39,760
we need on the satellite i always

1449
00:57:44,309 --> 00:57:41,520
related to going to visit like we were

1450
00:57:46,069 --> 00:57:44,319
in south america a couple of weeks ago

1451
00:57:47,349 --> 00:57:46,079
visiting in the amazon rainforest and

1452
00:57:48,710 --> 00:57:47,359
stuff like that

1453
00:57:50,150 --> 00:57:48,720
and i don't have to go away from here i

1454
00:57:52,630 --> 00:57:50,160
can go to places in the united states

1455
00:57:54,950 --> 00:57:52,640
where kids have no power

1456
00:57:57,270 --> 00:57:54,960
just think of taking a solar cell like

1457
00:57:59,190 --> 00:57:57,280
that uh that has incredible energy

1458
00:58:01,349 --> 00:57:59,200
producing capacity from just a very

1459
00:58:03,190 --> 00:58:01,359
little bit of light uh what it can do

1460
00:58:04,150 --> 00:58:03,200
and i think you know we always talk

1461
00:58:08,710 --> 00:58:04,160
about

1462
00:58:10,710 --> 00:58:08,720
a difference for people here on earth

1463
00:58:13,109 --> 00:58:10,720

that's what we try to do so the

1464
00:58:15,030 --> 00:58:13,119
challenges are the same as we find here

1465
00:58:17,349 --> 00:58:15,040
on earth how do we how do we provide

1466
00:58:19,750 --> 00:58:17,359
food for people uh how do we keep them

1467
00:58:21,589 --> 00:58:19,760
healthy uh serena mentioned the the

1468
00:58:23,349 --> 00:58:21,599
exercise that we have to do you don't

1469
00:58:25,589 --> 00:58:23,359
think about it until you find yourself

1470
00:58:28,630 --> 00:58:25,599
in space and all of a sudden gravity is

1471
00:58:30,710 --> 00:58:28,640
an incredible incredibly important part

1472
00:58:33,030 --> 00:58:30,720
of our lives bones don't do right

1473
00:58:35,349 --> 00:58:33,040
without gravity muscles don't do right

1474
00:58:38,549 --> 00:58:35,359
without gravity so they have to design

1475
00:58:41,270 --> 00:58:38,559
methods uh isometrics we use you know we

1476
00:58:43,670 --> 00:58:41,280
used to think poo poo uh it won't do

1477
00:58:45,990 --> 00:58:43,680
anything we now know that isometrics

1478
00:58:47,430 --> 00:58:46,000
really help we've got problems with uh

1479
00:58:49,349 --> 00:58:47,440
it was alluded to

1480
00:58:51,829 --> 00:58:49,359
something we call intracranial pressure

1481
00:58:54,150 --> 00:58:51,839
the lack of gravity presents all kinds

1482
00:58:55,510 --> 00:58:54,160
of challenges to the human body but the

1483
00:58:58,390 --> 00:58:55,520
human body is an

1484
00:59:01,270 --> 00:58:58,400
amazing machine that's very adaptable if

1485
00:59:02,470 --> 00:59:01,280
we can come up with the kinds of medical

1486
00:59:04,950 --> 00:59:02,480
research and advances that they're

1487
00:59:06,470 --> 00:59:04,960
talking about yeah we have time for one

1488
00:59:07,750 --> 00:59:06,480

more question and then we'll have to

1489
00:59:09,430 --> 00:59:07,760
wrap it up

1490
00:59:11,109 --> 00:59:09,440
my name is charles simmet i'm also a

1491
00:59:12,950 --> 00:59:11,119
graduate student at nasa langley with

1492
00:59:14,390 --> 00:59:12,960
the national institute of aerospace and

1493
00:59:16,630 --> 00:59:14,400
i'm wondering what your interactions

1494
00:59:18,390 --> 00:59:16,640
with the commercial sector have been and

1495
00:59:19,750 --> 00:59:18,400
have you interacted with them yet or

1496
00:59:21,670 --> 00:59:19,760
what are your future plans to interact

1497
00:59:24,630 --> 00:59:21,680
with the commercial sector

1498
00:59:26,150 --> 00:59:24,640
in our exploration branch uh we are

1499
00:59:28,789 --> 00:59:26,160
working with

1500
00:59:31,990 --> 00:59:28,799
six contractors on the commercial side

1501
00:59:34,789 --> 00:59:32,000
right now we have um four funded and two

1502
00:59:37,270 --> 00:59:34,799
unfunded we have spacex

1503
00:59:39,270 --> 00:59:37,280
we have boeing we have sierra nevada and

1504
00:59:41,750 --> 00:59:39,280
we have a blue origin and then we have

1505
00:59:42,950 --> 00:59:41,760
atk and ula that came in a little bit

1506
00:59:45,430 --> 00:59:42,960
late to the game and are currently

1507
00:59:47,670 --> 00:59:45,440
unfunded getting ready to ramp up a new

1508
00:59:50,309 --> 00:59:47,680
set of contracts and a new you know part

1509
00:59:52,309 --> 00:59:50,319
of the program next phase for that

1510
00:59:53,670 --> 00:59:52,319
we're in we are working with those folks

1511
00:59:55,990 --> 00:59:53,680
every day to help them through their

1512
00:59:57,430 --> 00:59:56,000
processes uh as consultants we're trying

1513
00:59:58,950 --> 00:59:57,440

to give them the data we're trying to

1514
01:00:01,030 --> 00:59:58,960
help them you know we're trying to be

1515
01:00:03,270 --> 01:00:01,040
conduits so that they can have insight

1516
01:00:05,750 --> 01:00:03,280
into all the corporate knowledge within

1517
01:00:08,069 --> 01:00:05,760
uh nasa so that we can help them uh

1518
01:00:09,270 --> 01:00:08,079
create and help shore up the commercial

1519
01:00:11,190 --> 01:00:09,280
program

1520
01:00:13,430 --> 01:00:11,200
it's it's a great process it's been

1521
01:00:14,950 --> 01:00:13,440
working really good and as a graduate

1522
01:00:17,109 --> 01:00:14,960
student getting ready to enter into the

1523
01:00:18,789 --> 01:00:17,119
business keep an eye on it and get on

1524
01:00:21,030 --> 01:00:18,799
all their websites get their email

1525
01:00:22,710 --> 01:00:21,040
coming to you directly and and you'll

1526
01:00:23,990 --> 01:00:22,720
see the process and it's going to get

1527
01:00:25,349 --> 01:00:24,000
better and better and better and bigger

1528
01:00:26,630 --> 01:00:25,359
and bigger and bigger

1529
01:00:28,230 --> 01:00:26,640
until ultimately we're going to have

1530
01:00:30,950 --> 01:00:28,240
several vehicles in the commercial

1531
01:00:32,630 --> 01:00:30,960
market so it's very exciting

1532
01:00:35,190 --> 01:00:32,640
and we need all you guys to get smart

1533
01:00:36,710 --> 01:00:35,200
and join this team so that we can

1534
01:00:38,870 --> 01:00:36,720
we can offload some of the workload

1535
01:00:47,910 --> 01:00:38,880
because it's really busy

1536
01:00:50,789 --> 01:00:49,430
it's an exciting day here at nasa

1537
01:00:53,030 --> 01:00:50,799
remember that you can become an

1538
01:00:56,630 --> 01:00:53,040

astronaut it's easy to apply go to

1539
01:00:59,510 --> 01:00:58,069
look at the front page look for the

1540
01:01:01,430 --> 01:00:59,520
announcement or do a search for