1
00:00:07,190 --> 00:00:05,190
hello everyone and welcome to today's

2
00:00:09,350 --> 00:00:07,200
briefing on the science and research

3
00:00:11,669 --> 00:00:09,360
cargo headed up to the international

4
00:00:12,629 --> 00:00:11,679
space station aboard orbital's cygnus

5
00:00:15,270 --> 00:00:12,639
science

6
00:00:17,349 --> 00:00:15,280
cygnus cargo spacecraft

7
00:00:20,310 --> 00:00:17,359
antares rocket is scheduled to lift off

8
00:00:23,109 --> 00:00:20,320
tomorrow at 6 45 pm eastern time

9
00:00:25,830 --> 00:00:23,119
from launch pad 0a at the mid-atlantic

10
00:00:28,390 --> 00:00:25,840
regional space port here at wallops

11
00:00:31,109 --> 00:00:28,400
flight facility in virginia there are

12
00:00:34,630 --> 00:00:31,119
more than 600 pounds alone of science

13
00:00:36,549 --> 00:00:34,640

cargo headed up on board cygnus and to

14
00:00:37,990 --> 00:00:36,559
talk about some of those investigations

15
00:00:40,549 --> 00:00:38,000
and how they'll expand the research

16
00:00:43,190 --> 00:00:40,559
capabilities of the space station crew

17
00:00:46,069 --> 00:00:43,200
our camila lean assistant international

18
00:00:47,590 --> 00:00:46,079
space station program scientist

19
00:00:49,430 --> 00:00:47,600
brian talbot

20
00:00:51,510 --> 00:00:49,440
cases director of marketing and

21
00:00:54,069 --> 00:00:51,520
communications

22
00:00:55,830 --> 00:00:54,079
and jeff goldstein student space flight

23
00:00:57,350 --> 00:00:55,840
experiments program principal

24
00:00:59,590 --> 00:00:57,360
investigator

25
00:01:02,470 --> 00:00:59,600
for those of you watching on tv today

26
00:01:04,469 --> 00:01:02,480
we'll take questions using the hashtag

27
00:01:06,550 --> 00:01:04,479
asknasa

28
00:01:09,750 --> 00:01:06,560
and with that we'll go ahead and start

29
00:01:11,590 --> 00:01:09,760
go ahead camille thank you rachel hello

30
00:01:13,350 --> 00:01:11,600
good afternoon thank you so much for

31
00:01:15,109 --> 00:01:13,360
joining us today

32
00:01:16,469 --> 00:01:15,119
it is our pleasure to share with you

33
00:01:18,950 --> 00:01:16,479
some of the science that will be

34
00:01:21,429 --> 00:01:18,960
launched on tomorrow's orbital cygnus

35
00:01:24,469 --> 00:01:21,439
spacecraft which brings additional

36
00:01:27,190 --> 00:01:24,479
critical u.s capability to ensure the

37
00:01:29,990 --> 00:01:27,200
successful research activities that are

38
00:01:32,630 --> 00:01:30,000

going on on board the space station

39
00:01:35,749 --> 00:01:32,640
the cygnus spacecraft can accommodate a

40
00:01:38,469 --> 00:01:35,759
variety of scientific payloads within

41
00:01:41,190 --> 00:01:38,479
its pressurized cargo

42
00:01:44,870 --> 00:01:41,200
capsule and this particular launch will

43
00:01:47,429 --> 00:01:44,880
carry a little over 680 kilograms

44
00:01:49,910 --> 00:01:47,439
of science payloads which as i

45
00:01:51,670 --> 00:01:49,920
understand it is almost about a third of

46
00:01:54,870 --> 00:01:51,680
the total supplies that will be

47
00:01:57,590 --> 00:01:54,880
delivered tomorrow to the space station

48
00:01:59,749 --> 00:01:57,600
over the course of a year we conduct

49
00:02:01,990 --> 00:01:59,759
hundreds of experiments on board the

50
00:02:04,230 --> 00:02:02,000
space station in a variety of

51
00:02:05,910 --> 00:02:04,240
disciplines including biology and

52
00:02:09,270 --> 00:02:05,920
biotechnology

53
00:02:10,949 --> 00:02:09,280
human research physical science earth

54
00:02:13,190 --> 00:02:10,959
and space science

55
00:02:16,630 --> 00:02:13,200
we do technology demonstration and

56
00:02:20,550 --> 00:02:16,640
development and lastly education

57
00:02:22,949 --> 00:02:20,560
to date we have conducted about 1600

58
00:02:24,309 --> 00:02:22,959
investigations on board this station

59
00:02:27,430 --> 00:02:24,319
that represent

60
00:02:31,350 --> 00:02:27,440
approximately 1500 scientists

61
00:02:33,270 --> 00:02:31,360
from about 69 countries around the world

62
00:02:35,990 --> 00:02:33,280
these results

63
00:02:39,270 --> 00:02:36,000

that are analyzed really helped to

64
00:02:42,470 --> 00:02:39,280
advance our core knowledge of the

65
00:02:43,190 --> 00:02:42,480
natural world around us it also enables

66
00:02:46,790 --> 00:02:43,200
us

67
00:02:49,589 --> 00:02:46,800
to further explore our solar system and

68
00:02:50,470 --> 00:02:49,599
finally it contributes to improving the

69
00:02:53,190 --> 00:02:50,480
quality

70
00:02:54,949 --> 00:02:53,200
of our lives here on earth

71
00:02:58,070 --> 00:02:54,959
this particular launch will send

72
00:03:00,949 --> 00:02:58,080
supplies necessary to support the

73
00:03:03,190 --> 00:03:00,959
ongoing investigations

74
00:03:05,309 --> 00:03:03,200
across the several disciplines but it

75
00:03:08,229 --> 00:03:05,319
will also send up some new

76
00:03:10,229 --> 00:03:08,239
investigations that we'll share with you

77
00:03:12,470 --> 00:03:10,239
here today

78
00:03:13,990 --> 00:03:12,480
the first investigation i'll talk about

79
00:03:16,390 --> 00:03:14,000
is called meteo

80
00:03:19,430 --> 00:03:16,400
and it will be the first space-based

81
00:03:23,110 --> 00:03:19,440
observation of the chemical compositions

82
00:03:26,149 --> 00:03:23,120
of meteos entering earth's atmosphere

83
00:03:28,630 --> 00:03:26,159
as you know meteors are relatively rare

84
00:03:30,070 --> 00:03:28,640
and they're really difficult to monitor

85
00:03:32,550 --> 00:03:30,080
from the ground because of the

86
00:03:34,949 --> 00:03:32,560
interference of the earth's atmosphere

87
00:03:37,110 --> 00:03:34,959
so it's really exciting to be able to

88
00:03:38,390 --> 00:03:37,120

study them from the vantage point of

89
00:03:40,630 --> 00:03:38,400
space

90
00:03:44,149 --> 00:03:40,640
this investigation was developed by the

91
00:03:46,390 --> 00:03:44,159
southwest research institute and it uses

92
00:03:49,430 --> 00:03:46,400
high resolution

93
00:03:52,470 --> 00:03:49,440
video and image analysis to determine

94
00:03:55,190 --> 00:03:52,480
the physical and chemical composition of

95
00:03:57,110 --> 00:03:55,200
meteorite dust

96
00:04:00,309 --> 00:03:57,120
this analysis will include

97
00:04:04,149 --> 00:04:00,319
characterizing the size the density and

98
00:04:05,670 --> 00:04:04,159
the chemical composition of the meteors

99
00:04:07,990 --> 00:04:05,680
investigation

100
00:04:11,830 --> 00:04:08,000
investigating these compositions of the

101
00:04:15,030 --> 00:04:11,840
meteors adds to our understanding of how

102
00:04:17,670 --> 00:04:15,040
planets are developed continuous

103
00:04:21,349 --> 00:04:17,680
measurements of the meteor interaction

104
00:04:25,590 --> 00:04:21,359
with earth's atmosphere also could spot

105
00:04:27,909 --> 00:04:25,600
previously on scene meteors

106
00:04:30,230 --> 00:04:27,919
the second investigation i'll talk about

107
00:04:32,710 --> 00:04:30,240
is one of our human health

108
00:04:35,110 --> 00:04:32,720
experiments called drain brain

109
00:04:36,870 --> 00:04:35,120
and this is sponsored by the italian

110
00:04:39,830 --> 00:04:36,880
space agency

111
00:04:42,550 --> 00:04:39,840
it will try to determine how blood flows

112
00:04:45,030 --> 00:04:42,560
from the brain to the heart in the

113
00:04:47,189 --> 00:04:45,040

absence of gravity

114
00:04:49,830 --> 00:04:47,199
understanding this blood flow makes it

115
00:04:52,469 --> 00:04:49,840
possible for researchers to to develop

116
00:04:54,870 --> 00:04:52,479
countermeasures to treat headaches and

117
00:04:57,270 --> 00:04:54,880
other neurological symptoms that have

118
00:04:59,749 --> 00:04:57,280
been reported by crew members living on

119
00:05:01,990 --> 00:04:59,759
board the space station

120
00:05:04,070 --> 00:05:02,000
there is a special neck collar that will

121
00:05:06,550 --> 00:05:04,080
be used to measure the blood flow from

122
00:05:09,029 --> 00:05:06,560
the brain and it does not require

123
00:05:11,670 --> 00:05:09,039
special knowledge to operate

124
00:05:15,029 --> 00:05:11,680
this could make this collar a useful

125
00:05:18,230 --> 00:05:15,039
tool for monitoring patients on earth

126
00:05:20,870 --> 00:05:18,240
who have heart and brain disorders

127
00:05:23,510 --> 00:05:20,880
drain brain also could have implications

128
00:05:26,629 --> 00:05:23,520
for development of screening mechanisms

129
00:05:28,550 --> 00:05:26,639
for cognitive diseases like alzheimer's

130
00:05:30,710 --> 00:05:28,560
disease

131
00:05:33,749 --> 00:05:30,720
the final investigation i will talk

132
00:05:35,110 --> 00:05:33,759
about today happens upon re-entry of a

133
00:05:37,909 --> 00:05:35,120
spacecraft

134
00:05:40,870 --> 00:05:37,919
on board the cygnus is the re-entry

135
00:05:44,310 --> 00:05:40,880
breakup recorder we call reba and this

136
00:05:47,430 --> 00:05:44,320
one is equipped with wireless sensors

137
00:05:49,909 --> 00:05:47,440
this device will be placed on the atv 5

138
00:05:52,629 --> 00:05:49,919

and it records data during the re-entry

139
00:05:55,110 --> 00:05:52,639
and breakup of the vehicle from wireless

140
00:05:56,230 --> 00:05:55,120
sensors placed throughout the host

141
00:05:59,110 --> 00:05:56,240
vehicle

142
00:06:02,150 --> 00:05:59,120
the data return is analyzed and used to

143
00:06:05,029 --> 00:06:02,160
design future spacecraft that minimize

144
00:06:06,550 --> 00:06:05,039
hazards to both people and property on

145
00:06:08,950 --> 00:06:06,560
the ground

146
00:06:12,150 --> 00:06:08,960
so again these investigations are just a

147
00:06:14,390 --> 00:06:12,160
sample of the science that is enabled by

148
00:06:17,189 --> 00:06:14,400
tomorrow's orbital launch that

149
00:06:18,629 --> 00:06:17,199
contributes to the advancement of human

150
00:06:21,270 --> 00:06:18,639
exploration

151
00:06:24,150 --> 00:06:21,280
and as well as our daily lives here on

152
00:06:27,909 --> 00:06:26,150
great thank you camille um

153
00:06:29,749 --> 00:06:27,919
it's really exciting to be here today to

154
00:06:31,430 --> 00:06:29,759
talk about the week week's launch as

155
00:06:33,029 --> 00:06:31,440
well as what's been a month of exciting

156
00:06:35,110 --> 00:06:33,039
developments for the iss national

157
00:06:36,870 --> 00:06:35,120
laboratory as the managers of the

158
00:06:38,790 --> 00:06:36,880
national laboratory cases was tasked

159
00:06:40,309 --> 00:06:38,800
with three key areas of focus for the

160
00:06:42,870 --> 00:06:40,319
organization

161
00:06:45,189 --> 00:06:42,880
one to create innovation cycles where

162
00:06:47,590 --> 00:06:45,199
first class science is driving new

163
00:06:48,710 --> 00:06:47,600

technologies intellectual property as

164
00:06:50,150 --> 00:06:48,720
well as commercial and product

165
00:06:52,790 --> 00:06:50,160
opportunities

166
00:06:55,589 --> 00:06:52,800
two to utilize the iss to develop new

167
00:06:57,990 --> 00:06:55,599
capabilities and three education and

168
00:07:00,390 --> 00:06:58,000
outreach to use the iss as a premier

169
00:07:01,749 --> 00:07:00,400
platform for inspiring learning and

170
00:07:03,189 --> 00:07:01,759
discovery

171
00:07:05,350 --> 00:07:03,199
the developments in october all

172
00:07:07,110 --> 00:07:05,360
represent major strides forward as well

173
00:07:08,150 --> 00:07:07,120
as small steps forward in each of those

174
00:07:10,710 --> 00:07:08,160
areas

175
00:07:13,110 --> 00:07:10,720
so in regards to innovation cycles

176
00:07:15,270 --> 00:07:13,120
cases is strategic objective number one

177
00:07:17,430 --> 00:07:15,280
cases just announced a series of life

178
00:07:19,670 --> 00:07:17,440
sciences investigations from baylor

179
00:07:21,350 --> 00:07:19,680
college of medicine houston methodist as

180
00:07:23,350 --> 00:07:21,360
well as ucla

181
00:07:26,390 --> 00:07:23,360
these will look in areas including

182
00:07:29,430 --> 00:07:26,400
osteoporosis personalized medicine

183
00:07:31,670 --> 00:07:29,440
as well as genomics in an omics platform

184
00:07:33,270 --> 00:07:31,680
we also just released a new request for

185
00:07:35,430 --> 00:07:33,280
information that's going to enable

186
00:07:37,270 --> 00:07:35,440
disease model research to accelerate

187
00:07:38,309 --> 00:07:37,280
space research and understanding human

188
00:07:40,150 --> 00:07:38,319

disease

189
00:07:42,629 --> 00:07:40,160
identifying drug targets as well as

190
00:07:44,950 --> 00:07:42,639
evaluating new therapeutics

191
00:07:46,950 --> 00:07:44,960
also this month we introduced a request

192
00:07:48,950 --> 00:07:46,960
for proposals that was announced that

193
00:07:51,350 --> 00:07:48,960
will explore earth observation in order

194
00:07:53,110 --> 00:07:51,360
to benefit energy technologies and

195
00:07:55,270 --> 00:07:53,120
finally we're very excited about science

196
00:07:58,150 --> 00:07:55,280
experiments that returned yesterday on

197
00:08:00,230 --> 00:07:58,160
the the spacex capsule

198
00:08:02,309 --> 00:08:00,240
on our first protein crystal growth

199
00:08:04,950 --> 00:08:02,319
experiments so those looked at cystic

200
00:08:06,230 --> 00:08:04,960
fibrosis huntington's disease as well as

201
00:08:07,510 --> 00:08:06,240
parkinson's disease so we're very

202
00:08:08,550 --> 00:08:07,520
excited to find out the results from

203
00:08:11,430 --> 00:08:08,560
that

204
00:08:13,189 --> 00:08:11,440
in regards to new capability cases his

205
00:08:15,749 --> 00:08:13,199
second strategic objective

206
00:08:17,990 --> 00:08:15,759
last week we introduced a suite of six

207
00:08:20,150 --> 00:08:18,000
funding awards as part of our enabling

208
00:08:22,070 --> 00:08:20,160
technologies request for proposals that

209
00:08:24,550 --> 00:08:22,080
was put out earlier this year we

210
00:08:26,469 --> 00:08:24,560
received a great response to this rfp

211
00:08:28,150 --> 00:08:26,479
and technologies came from a diverse mix

212
00:08:30,469 --> 00:08:28,160
of companies in the essence of time i

213
00:08:31,909 --> 00:08:30,479

just want to highlight two of those um

214
00:08:33,110 --> 00:08:31,919
those uh

215
00:08:34,070 --> 00:08:33,120
products which i think are pretty

216
00:08:35,909 --> 00:08:34,080
exciting

217
00:08:37,750 --> 00:08:35,919
the first comes from dr doswell of

218
00:08:39,670 --> 00:08:37,760
juxtopia so they're going to be

219
00:08:41,190 --> 00:08:39,680
developing an innovative augmented

220
00:08:42,949 --> 00:08:41,200
reality

221
00:08:45,030 --> 00:08:42,959
goggle system so the comparison

222
00:08:45,910 --> 00:08:45,040
technology would be a google glass

223
00:08:48,230 --> 00:08:45,920
but it's

224
00:08:50,150 --> 00:08:48,240
built for the iss those augmented

225
00:08:52,389 --> 00:08:50,160
reality goggles are going to provide

226
00:08:54,310 --> 00:08:52,399
virtual assistance that seeks to improve

227
00:08:56,470 --> 00:08:54,320
the speed and accuracy with which

228
00:08:57,910 --> 00:08:56,480
astronauts can perform iss natural lab

229
00:08:59,350 --> 00:08:57,920
experiments

230
00:09:00,949 --> 00:08:59,360
moreover there are already earth-based

231
00:09:02,790 --> 00:09:00,959
markets for these technologies when you

232
00:09:04,550 --> 00:09:02,800
think of hostile environments for

233
00:09:06,470 --> 00:09:04,560
emergency responders as well as austere

234
00:09:08,230 --> 00:09:06,480
or extreme environments

235
00:09:09,910 --> 00:09:08,240
the second technology that's pretty

236
00:09:13,030 --> 00:09:09,920
exciting coming out of that request for

237
00:09:14,470 --> 00:09:13,040
proposals was the intuitive machines

238
00:09:16,150 --> 00:09:14,480

that was actually featured in popular

239
00:09:17,750 --> 00:09:16,160
science earlier this week so they're

240
00:09:19,509 --> 00:09:17,760
going to be testing a terrestrial return

241
00:09:21,509 --> 00:09:19,519
vehicle that addresses the need for

242
00:09:23,590 --> 00:09:21,519
small priority payload

243
00:09:26,389 --> 00:09:23,600
return from the iss so you'll be able to

244
00:09:29,110 --> 00:09:26,399
deliver up to 30 liters of

245
00:09:30,470 --> 00:09:29,120
iss payloads much faster and easier so

246
00:09:31,990 --> 00:09:30,480
we're very excited about those as we

247
00:09:35,030 --> 00:09:32,000
think they're going to help drive

248
00:09:37,269 --> 00:09:35,040
further utilization of the iss

249
00:09:39,190 --> 00:09:37,279
in regards to education or outreach

250
00:09:41,990 --> 00:09:39,200
which is the third uh case of strategic

251
00:09:44,230 --> 00:09:42,000
objective this um this flight represents

252
00:09:46,150 --> 00:09:44,240
a great opportunity there so the mission

253
00:09:48,870 --> 00:09:46,160
is going to be launching 16 cases

254
00:09:49,990 --> 00:09:48,880
sponsored research experiments the iss

255
00:09:52,550 --> 00:09:50,000
these were developed through two

256
00:09:54,310 --> 00:09:52,560
national stem programs both fostering a

257
00:09:56,230 --> 00:09:54,320
love for learning among elementary and

258
00:09:57,750 --> 00:09:56,240
high school students

259
00:09:59,430 --> 00:09:57,760
ten of those experiments jeff is going

260
00:10:01,350 --> 00:09:59,440
to be talking about in a little while

261
00:10:02,790 --> 00:10:01,360
which is a part of his portfolio from

262
00:10:05,590 --> 00:10:02,800
the student space flight experiments

263
00:10:07,590 --> 00:10:05,600

program this is their sixth mission and

264
00:10:10,870 --> 00:10:07,600
case is a very proud sponsor of that

265
00:10:12,470 --> 00:10:10,880
program the other six investigations

266
00:10:13,829 --> 00:10:12,480
are coming through the cases national

267
00:10:15,430 --> 00:10:13,839
design challenge and those are coming

268
00:10:17,590 --> 00:10:15,440
from the houston community

269
00:10:18,550 --> 00:10:17,600
so within houston we've selected that

270
00:10:19,670 --> 00:10:18,560
region

271
00:10:21,190 --> 00:10:19,680
to produce

272
00:10:22,310 --> 00:10:21,200
introduce space-based research to that

273
00:10:24,069 --> 00:10:22,320
community

274
00:10:26,150 --> 00:10:24,079
all six of those are coming from that

275
00:10:28,710 --> 00:10:26,160
area and we're excited

276
00:10:30,470 --> 00:10:28,720
to represent christo ray jesuit audi

277
00:10:31,910 --> 00:10:30,480
international school as well as duchesne

278
00:10:33,509 --> 00:10:31,920
academy which i'll be sending

279
00:10:35,269 --> 00:10:33,519
experiments up and we're also very

280
00:10:36,710 --> 00:10:35,279
excited that the crystal ray jesuit

281
00:10:37,750 --> 00:10:36,720
community will be here tomorrow to watch

282
00:10:39,590 --> 00:10:37,760
that launch

283
00:10:42,069 --> 00:10:39,600
so in summary this is a very exciting

284
00:10:43,750 --> 00:10:42,079
time for the iss community

285
00:10:45,509 --> 00:10:43,760
from new users and government commercial

286
00:10:47,350 --> 00:10:45,519
and academic to really life-changing

287
00:10:48,870 --> 00:10:47,360
opportunities for student communities

288
00:10:51,030 --> 00:10:48,880

there's there's a lot of great progress

289
00:10:53,110 --> 00:10:51,040
and opportunity

290
00:10:55,030 --> 00:10:53,120
well rachel thanks for having me um it's

291
00:10:56,069 --> 00:10:55,040
wonderful working on this program with

292
00:10:58,310 --> 00:10:56,079
nasa

293
00:11:00,230 --> 00:10:58,320
and i'm here to talk about the student

294
00:11:01,990 --> 00:11:00,240
space flight experiments program i'm the

295
00:11:04,230 --> 00:11:02,000
center director for the national center

296
00:11:06,870 --> 00:11:04,240
for earth and space science education

297
00:11:09,190 --> 00:11:06,880
we're a non-profit and the center in

298
00:11:11,590 --> 00:11:09,200
partnership with the arthur c clarke

299
00:11:13,910 --> 00:11:11,600
institute for space education oversees

300
00:11:16,150 --> 00:11:13,920
the student space flight experiments

301
00:11:17,670 --> 00:11:16,160
program or ssep

302
00:11:20,870 --> 00:11:17,680
the reason we're here today is because

303
00:11:23,990 --> 00:11:20,880
we have the yankee clipper ssep mission

304
00:11:27,269 --> 00:11:24,000
6 to iss payload going up on orb 3.

305
00:11:30,069 --> 00:11:27,279
there are 18 experiments we just had 15

306
00:11:31,910 --> 00:11:30,079
come down on spacex for mission 5

307
00:11:34,870 --> 00:11:31,920
which was launched in

308
00:11:37,190 --> 00:11:34,880
in july on orb 2.

309
00:11:39,829 --> 00:11:37,200
it's really exciting for us to have been

310
00:11:42,389 --> 00:11:39,839
on all four orbital sciences launches to

311
00:11:44,310 --> 00:11:42,399
the international space station and it's

312
00:11:45,829 --> 00:11:44,320
kind of amazing to think that just in

313
00:11:46,949 --> 00:11:45,839

four and a half years since program

314
00:11:49,990 --> 00:11:46,959
inception

315
00:11:52,790 --> 00:11:50,000
this is now our um eighth payload going

316
00:11:56,470 --> 00:11:52,800
into orbit the first two on the sp final

317
00:11:59,269 --> 00:11:56,480
space shuttle flights and six to iss um

318
00:12:00,710 --> 00:11:59,279
i'd like to uh just acknowledge a number

319
00:12:03,509 --> 00:12:00,720
of partners here

320
00:12:05,829 --> 00:12:03,519
we do this in a concert with our

321
00:12:08,069 --> 00:12:05,839
strategic partner nanorax

322
00:12:10,470 --> 00:12:08,079
which flies commercial payloads through

323
00:12:13,430 --> 00:12:10,480
a space act agreement with nasa

324
00:12:15,110 --> 00:12:13,440
and we are also very proud to be

325
00:12:16,710 --> 00:12:15,120
in national partnership with the center

326
00:12:17,910 --> 00:12:16,720
for the advancement of science and space

327
00:12:20,150 --> 00:12:17,920
for cases

328
00:12:22,310 --> 00:12:20,160
as well as subaru of america

329
00:12:25,750 --> 00:12:22,320
and each of the flight opportunities for

330
00:12:27,990 --> 00:12:25,760
sss works with a network of communities

331
00:12:30,470 --> 00:12:28,000
which at the local level represents a

332
00:12:31,829 --> 00:12:30,480
network of local partners so for mission

333
00:12:34,230 --> 00:12:31,839
6

334
00:12:36,870 --> 00:12:34,240
we have over 100 partner school

335
00:12:38,389 --> 00:12:36,880
districts companies foundations

336
00:12:41,670 --> 00:12:38,399
universities and other research

337
00:12:45,350 --> 00:12:41,680
institutions that make this possible

338
00:12:46,470 --> 00:12:45,360

the 18 mission 6 experiments represent

339
00:12:49,910 --> 00:12:46,480
over 6

340
00:12:51,350 --> 00:12:49,920
500 students in grades 5 through 15 so

341
00:12:53,990 --> 00:12:51,360
that includes

342
00:12:55,829 --> 00:12:54,000
four-year colleges and universities

343
00:13:00,310 --> 00:12:55,839
working on microgravity experiment

344
00:13:03,110 --> 00:13:00,320
design and over 1400 proposals that were

345
00:13:05,269 --> 00:13:03,120
submitted by student teams for flight

346
00:13:07,910 --> 00:13:05,279
experiments so let me first give you a

347
00:13:09,670 --> 00:13:07,920
sense of how sscp works

348
00:13:12,230 --> 00:13:09,680
it's essentially a call for proposals

349
00:13:14,949 --> 00:13:12,240
and the idea is to absolutely mirror how

350
00:13:17,750 --> 00:13:14,959
professional researchers do their thing

351
00:13:19,990 --> 00:13:17,760
if there's a limited professional

352
00:13:21,990 --> 00:13:20,000
research asset that nasa has available

353
00:13:24,389 --> 00:13:22,000
not enough to go around to the research

354
00:13:26,069 --> 00:13:24,399
community that wants to use it nasa will

355
00:13:28,230 --> 00:13:26,079
issue a call for proposals and

356
00:13:30,230 --> 00:13:28,240
researchers all over the country will

357
00:13:32,470 --> 00:13:30,240
design a research program that makes use

358
00:13:35,030 --> 00:13:32,480
of that asset and propose

359
00:13:36,629 --> 00:13:35,040
to make a case justify why they ought to

360
00:13:38,470 --> 00:13:36,639
get the asset as opposed to some other

361
00:13:40,870 --> 00:13:38,480
group and there is a review and

362
00:13:43,670 --> 00:13:40,880
selection process to essentially

363
00:13:45,350 --> 00:13:43,680

identify who gets the asset well ssep

364
00:13:47,350 --> 00:13:45,360
works the same way every one of the

365
00:13:49,829 --> 00:13:47,360
participating communities

366
00:13:52,230 --> 00:13:49,839
gets a limited research asset which is a

367
00:13:53,990 --> 00:13:52,240
microgravity research mini laboratory a

368
00:13:56,790 --> 00:13:54,000
fluid mixing enclosure and i'm showing

369
00:13:59,189 --> 00:13:56,800
this right now very easy to use very

370
00:14:00,230 --> 00:13:59,199
straightforward very powerful

371
00:14:02,069 --> 00:14:00,240
and

372
00:14:05,030 --> 00:14:02,079
the community gets guaranteed launch

373
00:14:06,870 --> 00:14:05,040
services to get that mini lab to iss and

374
00:14:08,150 --> 00:14:06,880
return it safely to earth for harvesting

375
00:14:10,949 --> 00:14:08,160
and analysis

376
00:14:12,870 --> 00:14:10,959
and so the the mini lab can only contain

377
00:14:15,509 --> 00:14:12,880
a single student team designed

378
00:14:18,550 --> 00:14:15,519
experiment so each community through a

379
00:14:21,110 --> 00:14:18,560
team of educators will engage typically

380
00:14:22,790 --> 00:14:21,120
300 plus students

381
00:14:24,310 --> 00:14:22,800
in real microgravity design and

382
00:14:28,629 --> 00:14:24,320
experiment

383
00:14:30,710 --> 00:14:28,639
those students will break into teams of

384
00:14:32,230 --> 00:14:30,720
typically three to five and each team is

385
00:14:34,550 --> 00:14:32,240
designing their own microgravity

386
00:14:37,350 --> 00:14:34,560
experiment and each team is their fly

387
00:14:39,910 --> 00:14:37,360
isn't here each team each team is

388
00:14:42,870 --> 00:14:39,920

writing uh their own proposal and

389
00:14:44,949 --> 00:14:42,880
typically 60 to 120 proposals are seen

390
00:14:46,870 --> 00:14:44,959
across a community and all those

391
00:14:48,949 --> 00:14:46,880
proposals go through a two-step review

392
00:14:50,550 --> 00:14:48,959
process and the national review board

393
00:14:53,030 --> 00:14:50,560
that meets at the smithsonian's national

394
00:14:55,350 --> 00:14:53,040
air and space museum will select the

395
00:14:57,189 --> 00:14:55,360
flight experiment for each community so

396
00:14:59,269 --> 00:14:57,199
that's how it works it's it what we're

397
00:15:01,750 --> 00:14:59,279
doing is we are immersing

398
00:15:03,829 --> 00:15:01,760
thousands of students in every facet of

399
00:15:06,629 --> 00:15:03,839
real microgravity experiment design and

400
00:15:08,550 --> 00:15:06,639
proposal writing so that we can inspire

401
00:15:10,790 --> 00:15:08,560
and engage the next generation of

402
00:15:13,670 --> 00:15:10,800
america scientists and engineers and

403
00:15:15,350 --> 00:15:13,680
canada's by the way because we have a

404
00:15:18,150 --> 00:15:15,360
community our second community from

405
00:15:20,629 --> 00:15:18,160
canada on the mission six payload so let

406
00:15:23,430 --> 00:15:20,639
me just uh say that uh with regard to

407
00:15:25,990 --> 00:15:23,440
this mini lab uh very powerful it's a

408
00:15:28,150 --> 00:15:26,000
it's simply a tube that can be sectioned

409
00:15:31,110 --> 00:15:28,160
into up to three volumes

410
00:15:33,030 --> 00:15:31,120
and one can imagine for instance

411
00:15:35,509 --> 00:15:33,040
a biological

412
00:15:38,150 --> 00:15:35,519
in a freeze-dried format placed in one

413
00:15:42,069 --> 00:15:38,160

volume a growth medium say in the second

414
00:15:43,990 --> 00:15:42,079
volume like luria broth and in the third

415
00:15:45,749 --> 00:15:44,000
volume you might have a fixative like

416
00:15:48,470 --> 00:15:45,759
glutaraldehyde which will kill and

417
00:15:52,150 --> 00:15:48,480
preserve the biology before deorbit and

418
00:15:55,670 --> 00:15:52,160
reintroduction into a 1g environment so

419
00:15:58,310 --> 00:15:55,680
the students have to design against

420
00:15:59,430 --> 00:15:58,320
submission of the payload a few weeks

421
00:16:01,590 --> 00:15:59,440
before

422
00:16:04,150 --> 00:16:01,600
launch so the experiments have to be put

423
00:16:06,310 --> 00:16:04,160
in stasis they have to take into account

424
00:16:08,550 --> 00:16:06,320
the thermal controls along the different

425
00:16:10,389 --> 00:16:08,560
transport legs they have to take into

426
00:16:12,550 --> 00:16:10,399
account the specific crew interaction

427
00:16:15,110 --> 00:16:12,560
days that nasa makes available and the

428
00:16:17,829 --> 00:16:15,120
crew interactions they are constrained

429
00:16:19,829 --> 00:16:17,839
by this real operation of this mini

430
00:16:22,069 --> 00:16:19,839
laboratory and real space flight

431
00:16:23,910 --> 00:16:22,079
operations to and from low earth orbit

432
00:16:26,790 --> 00:16:23,920
so with regard to the experiments that

433
00:16:29,350 --> 00:16:26,800
are flying there's a very large range of

434
00:16:32,069 --> 00:16:29,360
science disciplines flying on

435
00:16:34,230 --> 00:16:32,079
uh yankee clipper we've got crystal

436
00:16:36,470 --> 00:16:34,240
growth efficacy of composting in

437
00:16:38,470 --> 00:16:36,480
microgravity a number of bacterial

438
00:16:40,710 --> 00:16:38,480

studies including growth of coliform

439
00:16:44,150 --> 00:16:40,720
bacteria efficacy of biocides on

440
00:16:46,389 --> 00:16:44,160
bacteria e coli attachment to lettuce

441
00:16:48,550 --> 00:16:46,399
growth and development of mosquitoes and

442
00:16:51,509 --> 00:16:48,560
house flies seed germination and

443
00:16:53,829 --> 00:16:51,519
geotropism studies hydroponic studies

444
00:16:57,350 --> 00:16:53,839
microaquatic life in the in the form of

445
00:16:59,749 --> 00:16:57,360
development of fairy shrimp and rate of

446
00:17:02,470 --> 00:16:59,759
food spoilage so it really is a

447
00:17:04,470 --> 00:17:02,480
very diverse array of

448
00:17:07,029 --> 00:17:04,480
experiments

449
00:17:08,949 --> 00:17:07,039
in the press package is a table that

450
00:17:10,710 --> 00:17:08,959
lists all of the 18 communities their

451
00:17:13,909 --> 00:17:10,720
experiments their teams their grade

452
00:17:17,590 --> 00:17:13,919
levels and eight of those teams will be

453
00:17:19,590 --> 00:17:17,600
at launch we've got 150 delegates at the

454
00:17:21,350 --> 00:17:19,600
launch and there'll be a

455
00:17:23,350 --> 00:17:21,360
nasa has invited us to do a media

456
00:17:24,789 --> 00:17:23,360
briefing tomorrow

457
00:17:26,870 --> 00:17:24,799
where all of the teams will be

458
00:17:28,470 --> 00:17:26,880
presenting on their experiments so let

459
00:17:31,750 --> 00:17:28,480
me just say uh

460
00:17:35,110 --> 00:17:31,760
in in closing this is koichi wakata

461
00:17:37,350 --> 00:17:35,120
activating one of the many labs on orbit

462
00:17:39,750 --> 00:17:37,360
this was a mission 4

463
00:17:42,230 --> 00:17:39,760

mini lab that went up on orb 2 and this

464
00:17:45,590 --> 00:17:42,240
is happening in january

465
00:17:47,909 --> 00:17:45,600
the next slide is a picture of our team

466
00:17:50,870 --> 00:17:47,919
from ocean city new jersey which is

467
00:17:55,750 --> 00:17:50,880
looking at e coli attachment to lettuce

468
00:17:58,390 --> 00:17:55,760
and this third image is a dc team

469
00:18:00,870 --> 00:17:58,400
which is looking at chrysanthemum

470
00:18:02,789 --> 00:18:00,880
seedling development and let me just say

471
00:18:05,510 --> 00:18:02,799
that the dc team is our first four-year

472
00:18:07,909 --> 00:18:05,520
college and university community led by

473
00:18:09,510 --> 00:18:07,919
american university and seven a

474
00:18:11,830 --> 00:18:09,520
consortium of seven metro area

475
00:18:14,070 --> 00:18:11,840
universities and these students

476
00:18:16,789 --> 00:18:14,080
participating are future science

477
00:18:19,350 --> 00:18:16,799
teachers so the idea was to immerse

478
00:18:21,510 --> 00:18:19,360
future science teachers in research so

479
00:18:23,590 --> 00:18:21,520
that they could see how it works and let

480
00:18:25,190 --> 00:18:23,600
me also say one last thing about another

481
00:18:28,070 --> 00:18:25,200
team from north charleston south

482
00:18:29,350 --> 00:18:28,080
carolina who are here and i see them in

483
00:18:33,190 --> 00:18:29,360
the audience

484
00:18:35,750 --> 00:18:33,200
what's interesting about this team is

485
00:18:38,470 --> 00:18:35,760
they're looking at whisker growth in

486
00:18:41,190 --> 00:18:38,480
microgravity these are whisker-like

487
00:18:43,029 --> 00:18:41,200
metallic crystals that form on

488
00:18:45,510 --> 00:18:43,039

printed circuit boards a real problem in

489
00:18:47,750 --> 00:18:45,520
microgravity and the reason i mentioned

490
00:18:50,710 --> 00:18:47,760
them is that this team submitted a

491
00:18:52,950 --> 00:18:50,720
proposal last year last cycle and got as

492
00:18:54,789 --> 00:18:52,960
far as the finalist stage

493
00:18:56,390 --> 00:18:54,799
and they did not get selected but based

494
00:18:58,310 --> 00:18:56,400
on the strength and weaknesses comments

495
00:19:00,230 --> 00:18:58,320
of the review panel they resubmitted and

496
00:19:02,870 --> 00:19:00,240
now they're the flight experiment and

497
00:19:03,830 --> 00:19:02,880
that's exactly how professional research

498
00:19:06,230 --> 00:19:03,840
happens

499
00:19:07,750 --> 00:19:06,240
so i wanted to point that out because we

500
00:19:09,510 --> 00:19:07,760
thought that that was a wonderful

501
00:19:12,390 --> 00:19:09,520
example of how this program is supposed

502
00:19:17,270 --> 00:19:14,870
okay we'll take some questions from here

503
00:19:20,150 --> 00:19:17,280
in the room and as a reminder if you

504
00:19:24,150 --> 00:19:20,160
have any social media questions you can

505
00:19:26,230 --> 00:19:24,160
send us to us using the hashtag asknasa

506
00:19:27,990 --> 00:19:26,240
go ahead ken hi ken kramer universe

507
00:19:30,470 --> 00:19:28,000
today in america space i have a question

508
00:19:32,470 --> 00:19:30,480
for camille and and for jeff uh from

509
00:19:34,230 --> 00:19:32,480
camille can you talk about this meteor

510
00:19:35,830 --> 00:19:34,240
experiment a little bit what what what

511
00:19:38,070 --> 00:19:35,840
does it involve uh how are the

512
00:19:39,270 --> 00:19:38,080
astronauts involved is very interesting

513
00:19:41,430 --> 00:19:39,280

for jeff

514
00:19:43,510 --> 00:19:41,440
i'd like to talk to you about senator

515
00:19:45,029 --> 00:19:43,520
coburn he criticized your program i find

516
00:19:46,549 --> 00:19:45,039
this extremely disheartening as a

517
00:19:48,950 --> 00:19:46,559
scientist that he would criticize

518
00:19:52,950 --> 00:19:48,960
student scientists so i would like you

519
00:19:54,789 --> 00:19:52,960
to respond to his criticism thank you

520
00:19:57,990 --> 00:19:54,799
so to your first question the meteor

521
00:20:00,150 --> 00:19:58,000
investigation uh includes hardware that

522
00:20:01,590 --> 00:20:00,160
is both video

523
00:20:04,310 --> 00:20:01,600
and imaging

524
00:20:05,110 --> 00:20:04,320
capability and it will

525
00:20:08,549 --> 00:20:05,120
be

526
00:20:09,590 --> 00:20:08,559
set to take those images of the meteor

527
00:20:13,510 --> 00:20:09,600
as it's

528
00:20:15,430 --> 00:20:13,520
flying through the atmosphere um so

529
00:20:20,149 --> 00:20:15,440
developed by southwest research

530
00:20:24,149 --> 00:20:23,029
it is uh active

531
00:20:26,390 --> 00:20:24,159
the the

532
00:20:27,270 --> 00:20:26,400
camera equipment is installed in the

533
00:20:29,110 --> 00:20:27,280
wharf

534
00:20:34,950 --> 00:20:29,120
which is a window

535
00:20:38,710 --> 00:20:37,190
can i think let me i knew this question

536
00:20:41,750 --> 00:20:38,720
was going to come up and i just wanted

537
00:20:44,149 --> 00:20:41,760
to read the quote from roll call

538
00:20:45,830 --> 00:20:44,159

what senator coburn said was while the

539
00:20:48,230 --> 00:20:45,840
encouraging young people to take an

540
00:20:49,990 --> 00:20:48,240
interest in science is an important goal

541
00:20:51,990 --> 00:20:50,000
the billions of dollars being borrowed

542
00:20:54,630 --> 00:20:52,000
to support space station science fair

543
00:20:56,390 --> 00:20:54,640
experiments could make a bigger impact

544
00:20:59,350 --> 00:20:56,400
in the lives of these and other children

545
00:21:00,950 --> 00:20:59,360
in many other more cost efficient ways

546
00:21:03,510 --> 00:21:00,960
we were very disheartened by that

547
00:21:05,669 --> 00:21:03,520
statement the first thing is

548
00:21:08,710 --> 00:21:05,679
he's he's putting this in a very

549
00:21:11,110 --> 00:21:08,720
derogatory sense i mean as i said before

550
00:21:14,149 --> 00:21:11,120
these are thousands of students being

551
00:21:15,510 --> 00:21:14,159
immersed in real research to see it for

552
00:21:17,750 --> 00:21:15,520
themselves

553
00:21:19,909 --> 00:21:17,760
and these students are the next

554
00:21:22,870 --> 00:21:19,919
generation of scientists and engineers

555
00:21:25,909 --> 00:21:22,880
these students are in the pipeline to

556
00:21:28,630 --> 00:21:25,919
ensure that america's space program can

557
00:21:31,669 --> 00:21:28,640
continue for decades to come this is

558
00:21:33,830 --> 00:21:31,679
really important stuff and to diminish

559
00:21:36,470 --> 00:21:33,840
what these student researchers is doing

560
00:21:38,870 --> 00:21:36,480
is not right the other issue is he's way

561
00:21:40,789 --> 00:21:38,880
off the mark with regard to funding he's

562
00:21:43,430 --> 00:21:40,799
saying that there's billions of dollars

563
00:21:45,029 --> 00:21:43,440

being spent in support of these programs

564
00:21:47,110 --> 00:21:45,039
let's let's set the record straight

565
00:21:49,190 --> 00:21:47,120
right now um

566
00:21:51,990 --> 00:21:49,200
when whenever a community comes aboard

567
00:21:54,230 --> 00:21:52,000
and let's take mission six the cost to

568
00:21:56,310 --> 00:21:54,240
our non-profit full cost recovery is

569
00:21:58,630 --> 00:21:56,320
twenty one thousand five hundred dollars

570
00:22:00,310 --> 00:21:58,640
to to support one community

571
00:22:02,230 --> 00:22:00,320
and we've taken the precedent setting

572
00:22:04,070 --> 00:22:02,240
step to work with those communities to

573
00:22:07,590 --> 00:22:04,080
find a consortium of underwriting

574
00:22:09,110 --> 00:22:07,600
partners in the private sector to build

575
00:22:11,830 --> 00:22:09,120
that funding and we've been very

576
00:22:13,909 --> 00:22:11,840
successful so for mission five which is

577
00:22:16,070 --> 00:22:13,919
what he was talking about the total

578
00:22:18,390 --> 00:22:16,080
program cost was six hundred and twenty

579
00:22:20,149 --> 00:22:18,400
two thousand dollars when you roll in

580
00:22:23,110 --> 00:22:20,159
the fully burdened labor hours of the

581
00:22:25,510 --> 00:22:23,120
teachers involved and we raised five

582
00:22:28,070 --> 00:22:25,520
hundred and seventy two thousand dollars

583
00:22:29,830 --> 00:22:28,080
in the private sector and the reason

584
00:22:32,470 --> 00:22:29,840
that the fifty thousand so fifty

585
00:22:33,990 --> 00:22:32,480
thousand dollars was allocated from

586
00:22:36,549 --> 00:22:34,000
space station

587
00:22:38,230 --> 00:22:36,559
federal dollars for operation and where

588
00:22:40,230 --> 00:22:38,240

did that fifty thousand dollars come

589
00:22:43,110 --> 00:22:40,240
from it came from our our wonderful

590
00:22:45,350 --> 00:22:43,120
national partner cases because in many

591
00:22:47,590 --> 00:22:45,360
of these communities we work really hard

592
00:22:50,549 --> 00:22:47,600
to get to that 21.5 and there might be

593
00:22:53,110 --> 00:22:50,559
this little delta left over a couple of

594
00:22:54,549 --> 00:22:53,120
thousand dollars and if if we can't fill

595
00:22:56,950 --> 00:22:54,559
that budget shortfall they can't

596
00:22:59,270 --> 00:22:56,960
participate and cases gives us fifty

597
00:23:01,830 --> 00:22:59,280
thousand dollars a year permission just

598
00:23:03,990 --> 00:23:01,840
to fill those gaps to get those

599
00:23:07,110 --> 00:23:04,000
communities aboard so we're talking

600
00:23:09,510 --> 00:23:07,120
about eight percent in federal dollars

601
00:23:11,750 --> 00:23:09,520
on this mission the next mission flying

602
00:23:14,549 --> 00:23:11,760
it's just four percent on federal

603
00:23:15,909 --> 00:23:14,559
dollars and cases by the way and you can

604
00:23:18,630 --> 00:23:15,919
speak to this

605
00:23:20,710 --> 00:23:18,640
one of its strategic mandates is to

606
00:23:22,470 --> 00:23:20,720
leverage stem education on the

607
00:23:28,310 --> 00:23:22,480
international space station so you can

608
00:23:28,320 --> 00:23:32,149
okay other questions

609
00:23:42,149 --> 00:23:35,110
moving on social media

610
00:23:46,149 --> 00:23:43,669
all right this first question comes from

611
00:23:47,669 --> 00:23:46,159
twitter user launch complex who asks are

612
00:23:49,430 --> 00:23:47,679
any of the experiments designed

613
00:23:53,909 --> 00:23:49,440

specifically to fly with cygnus or could

614
00:23:59,350 --> 00:23:56,630
i'll say they can fly aboard any vehicle

615
00:24:02,310 --> 00:23:59,360
but it must be a pressurized uh vehicle

616
00:24:07,830 --> 00:24:02,320
so cygnus provides that capability of

617
00:24:12,870 --> 00:24:10,149
all right twitter user kieran asks how

618
00:24:17,029 --> 00:24:12,880
much space does the payload uh from the

619
00:24:19,430 --> 00:24:17,039
ss ep6 experiments uh prepared uh how

620
00:24:23,110 --> 00:24:19,440
much does that take up on the rocket

621
00:24:25,750 --> 00:24:23,120
uh i believe it's either 10 or 12 tubes

622
00:24:26,950 --> 00:24:25,760
in a payload box which is a 2u box about

623
00:24:29,669 --> 00:24:26,960
this big

624
00:24:32,390 --> 00:24:29,679
and so if we have 18 that's two

625
00:24:36,630 --> 00:24:32,400
2u boxes so 20 centimeters by 10

626
00:24:41,830 --> 00:24:39,269
all right then uh kryptonite here asks

627
00:24:43,510 --> 00:24:41,840
what is the goal overall

628
00:24:45,029 --> 00:24:43,520
why are we doing science with this why

629
00:24:48,549 --> 00:24:45,039
are we launching all this

630
00:24:52,390 --> 00:24:48,559
well our goal uh for doing research on

631
00:24:55,029 --> 00:24:52,400
the space station is three-fold one is

632
00:24:56,390 --> 00:24:55,039
to really advance our knowledge of

633
00:24:58,710 --> 00:24:56,400
understanding

634
00:25:00,870 --> 00:24:58,720
our environment our natural environment

635
00:25:03,269 --> 00:25:00,880
i think that is what science is it's the

636
00:25:06,390 --> 00:25:03,279
understanding of the natural environment

637
00:25:09,029 --> 00:25:06,400
around us secondly is to enable us to

638
00:25:11,909 --> 00:25:09,039

explore further explore space

639
00:25:12,950 --> 00:25:11,919
and thirdly to contribute to the

640
00:25:15,110 --> 00:25:12,960
benefit

641
00:25:16,870 --> 00:25:15,120
of humanity's

642
00:25:18,870 --> 00:25:16,880
life here on earth

643
00:25:21,430 --> 00:25:18,880
and let me let me answer that i think

644
00:25:23,190 --> 00:25:21,440
that any parent recognizes in their

645
00:25:26,549 --> 00:25:23,200
children when they're very young that we

646
00:25:29,430 --> 00:25:26,559
are we are born curious we are born to

647
00:25:31,510 --> 00:25:29,440
explore it's it's wired in us that's

648
00:25:34,950 --> 00:25:31,520
what it means to be human

649
00:25:37,669 --> 00:25:34,960
and and we as a species are curious

650
00:25:41,269 --> 00:25:37,679
about our place in a greater space we

651
00:25:43,430 --> 00:25:41,279
are wired we are born to go forth

652
00:25:46,470 --> 00:25:43,440
and the international space station is

653
00:25:49,190 --> 00:25:46,480
part of that mandate we are born to go

654
00:25:51,830 --> 00:25:49,200
forth and we do these things because we

655
00:25:53,590 --> 00:25:51,840
are meant to do these things

656
00:25:55,190 --> 00:25:53,600
let me just add briefly too there's just

657
00:25:57,269 --> 00:25:55,200
certain characteristics of doing

658
00:25:59,110 --> 00:25:57,279
microgravity research that that is the

659
00:26:00,710 --> 00:25:59,120
only place in the world in the universe

660
00:26:02,390 --> 00:26:00,720
where you can turn the gravity vector

661
00:26:03,830 --> 00:26:02,400
off and so there's unique things that

662
00:26:05,510 --> 00:26:03,840
you can do from a life sciences

663
00:26:07,430 --> 00:26:05,520

perspective from a materials development

664
00:26:08,549 --> 00:26:07,440
perspective from an earth observation

665
00:26:10,470 --> 00:26:08,559
perspective that you just can't do

666
00:26:11,669 --> 00:26:10,480
anywhere else so that's why

667
00:26:13,110 --> 00:26:11,679
iss

668
00:26:16,710 --> 00:26:13,120
experiments are so important to

669
00:26:24,310 --> 00:26:19,990
okay other questions here in the room

670
00:26:28,149 --> 00:26:26,230
hi my name is mandy i'm with uh nasa

671
00:26:29,750 --> 00:26:28,159
social i'm actually an occupational

672
00:26:31,269 --> 00:26:29,760
therapist so i work with a lot of

673
00:26:34,789 --> 00:26:31,279
alzheimer's patients and dementia

674
00:26:36,950 --> 00:26:34,799
patients so i was curious about um

675
00:26:40,070 --> 00:26:36,960
when would the device that you were

676
00:26:41,269 --> 00:26:40,080
mentioning that scans for alzheimer's is

677
00:26:42,950 --> 00:26:41,279
that something that we could possibly

678
00:26:44,310 --> 00:26:42,960
see in the near future

679
00:26:46,630 --> 00:26:44,320
and um

680
00:26:47,990 --> 00:26:46,640
i mean if so how exactly would it go

681
00:26:50,549 --> 00:26:48,000
about

682
00:26:53,110 --> 00:26:50,559
scanning for alzheimer's i mean

683
00:26:54,149 --> 00:26:53,120
i don't know if you know the details but

684
00:26:55,430 --> 00:26:54,159
but um

685
00:26:57,990 --> 00:26:55,440
at least is it something that we could

686
00:27:00,789 --> 00:26:58,000
see in the near future so this is the

687
00:27:03,350 --> 00:27:00,799
first time that this investigation is

688
00:27:05,990 --> 00:27:03,360

being conducted conducted on the space

689
00:27:08,870 --> 00:27:06,000
station so tomorrow's launch enables

690
00:27:11,510 --> 00:27:08,880
this equipment to go up to the space

691
00:27:14,549 --> 00:27:11,520
station and for researchers to really

692
00:27:17,269 --> 00:27:14,559
study this phenomenon of how the blood

693
00:27:19,510 --> 00:27:17,279
flows from the brain to the heart in the

694
00:27:21,190 --> 00:27:19,520
absence of gravity because gravity is an

695
00:27:22,630 --> 00:27:21,200
important

696
00:27:23,510 --> 00:27:22,640
vector

697
00:27:26,470 --> 00:27:23,520
in

698
00:27:29,110 --> 00:27:26,480
how a human body functions and so not

699
00:27:31,909 --> 00:27:29,120
having that gravitational

700
00:27:34,870 --> 00:27:31,919
element in the equation really changes

701
00:27:37,909 --> 00:27:34,880
the dynamics of how the human body

702
00:27:40,549 --> 00:27:37,919
adapts and so this investigation looks

703
00:27:42,789 --> 00:27:40,559
at that for the first time and allows

704
00:27:44,149 --> 00:27:42,799
researchers to really try and develop

705
00:27:45,430 --> 00:27:44,159
countermeasures

706
00:27:51,830 --> 00:27:45,440
to

707
00:27:55,350 --> 00:27:51,840
astronauts are experiencing

708
00:27:58,389 --> 00:27:55,360
in this space adaptation environment

709
00:28:01,430 --> 00:27:58,399
so i think that it probably will be a

710
00:28:03,909 --> 00:28:01,440
while before this equipment

711
00:28:05,590 --> 00:28:03,919
comes back and is really

712
00:28:07,990 --> 00:28:05,600
spun off into

713
00:28:09,909 --> 00:28:08,000

something that also can be used for

714
00:28:12,950 --> 00:28:09,919
alzheimer's patients but that's

715
00:28:18,950 --> 00:28:12,960
definitely potential uh a potential

716
00:28:18,960 --> 00:28:27,990
okay other questions

717
00:28:33,190 --> 00:28:30,389
chase turner nationalist social my

718
00:28:34,310 --> 00:28:33,200
question is well i have two um

719
00:28:37,830 --> 00:28:34,320
one is

720
00:28:39,269 --> 00:28:37,840
with the telemetry for the rebar program

721
00:28:40,710 --> 00:28:39,279
is that something that amateur radio

722
00:28:42,630 --> 00:28:40,720
operators around the world will be able

723
00:28:45,350 --> 00:28:42,640
to listen into

724
00:28:47,590 --> 00:28:45,360
and my second is what sorts of cubesats

725
00:28:50,230 --> 00:28:47,600
are being launched is it from around the

726
00:28:51,669 --> 00:28:50,240
world or just american universities uh

727
00:28:53,909 --> 00:28:51,679
this go around i'm sorry i don't know

728
00:28:55,269 --> 00:28:53,919
who to to ask you

729
00:28:56,950 --> 00:28:55,279
thank you

730
00:29:04,549 --> 00:28:56,960
i don't think yeah i'm not i'm not the

731
00:29:04,559 --> 00:29:08,950
i don't i don't know about the cubesats

732
00:29:12,470 --> 00:29:11,190
is launching quite a few

733
00:29:13,990 --> 00:29:12,480
cubesats

734
00:29:15,830 --> 00:29:14,000
so you might want to go to the nanoracks

735
00:29:17,190 --> 00:29:15,840
website i mean they're one of a number

736
00:29:18,870 --> 00:29:17,200
of organizations but you might want to

737
00:29:21,430 --> 00:29:18,880
go to the nanorx website and see what

738
00:29:23,990 --> 00:29:21,440

they're doing with cubesats

739
00:29:28,310 --> 00:29:24,000
and in terms of the first question about

740
00:29:31,990 --> 00:29:28,320
amateur radio enthusiasts being able to

741
00:29:34,470 --> 00:29:32,000
probably pipe into the telemetry data it

742
00:29:36,710 --> 00:29:34,480
depends it probably depends on the

743
00:29:39,350 --> 00:29:36,720
frequency by which the data is being

744
00:29:42,710 --> 00:29:39,360
collected so that will be the dependent

745
00:29:42,720 --> 00:29:48,389
any other questions

746
00:29:53,029 --> 00:29:49,669
sure

747
00:29:59,669 --> 00:29:56,230
so is this dude okay cool oh no i hear

748
00:30:00,470 --> 00:29:59,679
it now um so is the uh

749
00:30:02,230 --> 00:30:00,480
i have a lot of questions about the

750
00:30:05,909 --> 00:30:02,240
meteor thing because planetary planetary

751
00:30:07,510 --> 00:30:05,919
formation is like my jam so um

752
00:30:09,350 --> 00:30:07,520
so you just basically take pictures of

753
00:30:10,870 --> 00:30:09,360
it and you're going to analyze just that

754
00:30:11,669 --> 00:30:10,880
image data or are you going to be able

755
00:30:13,269 --> 00:30:11,679
to like

756
00:30:14,950 --> 00:30:13,279
grab onto any of them and stick them

757
00:30:16,950 --> 00:30:14,960
into like a chromatograph or anything

758
00:30:18,950 --> 00:30:16,960
like that what's the deal so i'm not i'm

759
00:30:22,149 --> 00:30:18,960
not the principal investigator of that

760
00:30:25,430 --> 00:30:22,159
investigation okay right but the the

761
00:30:28,310 --> 00:30:25,440
idea is that you take the images and the

762
00:30:30,470 --> 00:30:28,320
video from the vantage point of space

763
00:30:32,710 --> 00:30:30,480

without the interference of the earth's

764
00:30:35,590 --> 00:30:32,720
atmosphere and that's probably going to

765
00:30:37,909 --> 00:30:35,600
give the researchers and scientists a

766
00:30:41,350 --> 00:30:37,919
clear understanding

767
00:30:45,750 --> 00:30:41,360
of the composition of meteors which they

768
00:30:45,760 --> 00:30:49,830
okay other questions

769
00:30:54,950 --> 00:30:51,830
all right well i guess that'll do it for

770
00:30:57,430 --> 00:30:54,960
us um you can find out more about all of

771
00:31:01,110 --> 00:30:57,440
the space station science happening on

772
00:31:03,830 --> 00:31:01,120
board our orbital laboratory as well as

773
00:31:07,110 --> 00:31:03,840
the cargo headed up on cygnus tomorrow