
PAO
NASA

1
00:00:01,450 --> 00:00:02,160
>> Josh Farley: Hi everybody,

2
00:00:02,160 --> 00:00:03,860
Josh Farley here
inside Mission Control.

3
00:00:03,860 --> 00:00:05,250
We're looking forward to
taking your questions.

4
00:00:05,250 --> 00:00:07,260
I've got astronaut, Nichole
Stott sitting here beside me.

5
00:00:07,260 --> 00:00:10,350
She has flown both on the space
shuttle, I remember a couple

6
00:00:10,350 --> 00:00:13,080
of those missions, and she
lived onboard the Space Station

7
00:00:13,080 --> 00:00:15,960
as well so she is ready
to answer your questions

8
00:00:15,960 --> 00:00:17,690
so if we'll go ahead and get
started with the first one,

9
00:00:17,690 --> 00:00:22,760
we'll see if we can answer it.

10
00:00:22,760 --> 00:00:28,170
>> Introduce yourself,
introduce yourself.

11
00:00:29,740 --> 00:00:28,740

>> Hi. I'm [inaudible]

12
00:00:29,740 --> 00:00:31,180
>> Hi. I'm Latrell.

13
00:00:31,180 --> 00:00:32,520
>> Nicole Stott: Hi.

14
00:00:32,520 --> 00:00:33,400
Latrell

15
00:00:33,400 --> 00:00:36,250
>> Lattrell: What does
water look like in space?

16
00:00:36,250 --> 00:00:37,900
>> Nicole Stott: What does
water look like in space?

17
00:00:37,900 --> 00:00:39,010
I think that's the question.

18
00:00:39,010 --> 00:00:41,560
And well, water kind of
looks like water does

19
00:00:41,560 --> 00:00:44,750
on the ground except for
it takes a different shape.

20
00:00:44,750 --> 00:00:48,620
So if you were to say take your
drink bag filled with water

21
00:00:48,620 --> 00:00:50,780
and squirt it out on the
ground it's just going to kind

22
00:00:50,780 --> 00:00:53,670

of squirt out and then
drop to the ground.

23
00:00:53,670 --> 00:00:55,360
But in space if you
squirt it out it's going

24
00:00:55,360 --> 00:00:58,540
to make this big ball of water
but then it will just float

25
00:00:58,540 --> 00:01:01,910
around unless you disrupt
it and touch it and it'll go

26
00:01:01,910 --> 00:01:04,590
into a whole bunch of
littlier balls of water.

27
00:01:04,590 --> 00:01:07,310
But one of the other neat things
about water is that when it's

28
00:01:07,310 --> 00:01:09,830
in that big ball, you can
kind of stick your arm

29
00:01:09,830 --> 00:01:12,870
or something else through it
and it'll just coat your arm

30
00:01:12,870 --> 00:01:17,180
like a glove with the water
because that's the reason it is

31
00:01:17,180 --> 00:01:19,000
that surface tension and things

32
00:01:19,000 --> 00:01:20,340
like that just behave

differently

33
00:01:20,340 --> 00:01:24,000
in zero gravity instead of in
gravity like they do down here.

34
00:01:24,000 --> 00:01:26,400
So unless you shook it off your
arm it's going to stay there.

35
00:01:26,400 --> 00:01:28,860
But it still looks clear
like water does here.

36
00:01:28,860 --> 00:01:30,630
>> Latrell: Thank you.

37
00:01:30,630 --> 00:01:33,830
>> You have your question?

38
00:01:33,830 --> 00:01:44,750
>> Josh Farley: Let's see
do we have another question?

39
00:01:45,950 --> 00:01:48,690
>> Yes, we're ready.

40
00:01:48,690 --> 00:01:55,320
>> Would you like
to go back in space

41
00:01:55,320 --> 00:02:02,120
on the International
Space Station?

42
00:02:02,120 --> 00:02:03,250
>> Nicole Stott:
One word I guess.

43

00:02:03,250 --> 00:02:05,080
Yes, I would like
to go back to space

44
00:02:05,080 --> 00:02:07,070
on the International
Space Station.

45
00:02:07,070 --> 00:02:10,280
It is a really incredible
place and getting there

46
00:02:10,280 --> 00:02:16,080
and coming back is really a fun
and impressive ride and the time

47
00:02:16,080 --> 00:02:18,620
on space station
is just so amazing.

48
00:02:18,620 --> 00:02:22,090
Everything from the way you
float and move around in space

49
00:02:22,090 --> 00:02:24,710
and looking out the
window, back at earth

50
00:02:24,710 --> 00:02:28,150
or seeing other spacecraft and
having that time with your crew

51
00:02:28,150 --> 00:02:31,300
up there and also the
really neat kind of science

52
00:02:31,300 --> 00:02:33,530
and work that's going on up
there, I would love to go back

53

00:02:33,530 --> 00:02:34,530
to space station again.

54
00:02:34,530 --> 00:02:36,000
>> Josh Farley: I don't think
anybody has ever said no

55
00:02:36,000 --> 00:02:36,580
to that question.

56
00:02:36,580 --> 00:02:37,170
>> Nicole Stott:
No, I would have

57
00:02:37,170 --> 00:02:41,750
to question their
judgment if they said no.

58
00:02:41,750 --> 00:02:46,550
>> Josh Farley: All
right who's next?

59
00:02:46,550 --> 00:02:51,580
>> Why did you want to
always be an astronaut?

60
00:02:52,800 --> 00:02:54,740
>> Nicole Stott: So I think the
question is did I always want

61
00:02:54,740 --> 00:02:55,810
to be an astronaut?

62
00:02:55,810 --> 00:03:00,400
And I think I always thought
being an astronaut was a really

63
00:03:00,400 --> 00:03:01,430
cool thing.

64
00:03:01,430 --> 00:03:05,820
But it really wasn't until I
think I was in college already

65
00:03:05,820 --> 00:03:08,920
when I started thinking about
wow, maybe there's a possibility

66
00:03:08,920 --> 00:03:10,810
of actually being an astronaut.

67
00:03:10,810 --> 00:03:12,460
But I was lucky enough
to grow up with a family

68
00:03:12,460 --> 00:03:15,400
where we spent a lot of
time out at an airport.

69
00:03:15,400 --> 00:03:18,480
My dad liked to fly and so
I learned all about flying

70
00:03:18,480 --> 00:03:20,470
and knew I wanted to do
something with flying

71
00:03:20,470 --> 00:03:24,130
and in the end after I was
studying engineering at school,

72
00:03:24,130 --> 00:03:27,110
I thought well what better
place to fly than space.

73
00:03:27,110 --> 00:03:29,310
And that's what kind of
got me really thinking

74

00:03:29,310 --> 00:03:31,300
about being an astronaut.

75
00:03:31,300 --> 00:03:33,290
And then I was really
fortunate to get a job

76
00:03:33,290 --> 00:03:36,700
at Kennedy Space Center
in Florida and working

77
00:03:36,700 --> 00:03:39,530
with the space shuttles and
got to see even more and more

78
00:03:39,530 --> 00:03:41,610
about what being an
astronaut would be like

79
00:03:41,610 --> 00:03:43,750
and it made me more and
more interested in it

80
00:03:43,750 --> 00:03:45,940
and I had people that
encouraged me to apply

81
00:03:45,940 --> 00:03:49,070
and I'm very thankful to
them because quite honestly,

82
00:03:49,070 --> 00:03:52,010
I pinch myself or I have
Josh pinch me everyday

83
00:03:52,010 --> 00:03:56,370
to remind me how lucky I am that
I have this very, very cool job.

84
00:03:56,370 --> 00:03:59,510

>> Josh Farley: It's
a good question.

85
00:03:59,510 --> 00:04:04,500
>> Hi. My name is Jeffrey.

86
00:04:04,500 --> 00:04:05,530
>> Nicole Stott: Hi, Jeffrey.

87
00:04:05,530 --> 00:04:10,050
>> Jeffrey: Are you going
to the Mars Mission?

88
00:04:10,050 --> 00:04:11,500
>> Nicole Stott: Am I
going to the Mars Mission?

89
00:04:11,500 --> 00:04:13,140
Well, I don't think so.

90
00:04:13,140 --> 00:04:16,210
I think if I fly again it'll
be back up to space station

91
00:04:16,210 --> 00:04:20,460
but I think that Jeffrey
that you and probably some

92
00:04:20,460 --> 00:04:21,740
of those folks in your room

93
00:04:21,740 --> 00:04:24,550
with you should start
thinking really seriously

94
00:04:24,550 --> 00:04:27,090
about that whole kind
of astronaut or science

95

00:04:27,090 --> 00:04:31,980
and technology kind of jobs and
perhaps maybe one of you or more

96
00:04:31,980 --> 00:04:35,270
of you in that room will be
the ones going to Mars someday.

97
00:04:35,270 --> 00:04:39,790
I really, really hope
that I can watch my son

98
00:04:39,790 --> 00:04:42,910
who is a fifth grader have
those kinds of opportunities

99
00:04:42,910 --> 00:04:45,530
and the same for
you guys as well.

100
00:04:45,530 --> 00:04:48,990
I think we do have that to look
forward to but unfortunately,

101
00:04:48,990 --> 00:04:54,550
I don't think I'll be
the one riding to Mars.

102
00:04:54,550 --> 00:05:00,040
>> Is it comfortable in space?

103
00:05:00,040 --> 00:05:01,620
>> Nicole Stott: Is it
comfortable in space?

104
00:05:01,620 --> 00:05:03,860
It is really, really
comfortable in space.

105
00:05:03,860 --> 00:05:06,300

So imagine right now in your
classroom that you are able

106
00:05:06,300 --> 00:05:10,050
to just kind of float up out of
your chair and you didn't feel

107
00:05:10,050 --> 00:05:13,550
like the pressure of your legs
or your bottom in your chair

108
00:05:13,550 --> 00:05:15,950
on the wooden seat or
the metal seat right now

109
00:05:15,950 --> 00:05:18,770
and that everything was
just kind of offloaded

110
00:05:18,770 --> 00:05:20,190
and you were able to float.

111
00:05:20,190 --> 00:05:22,070
It makes it very,
very comfortable

112
00:05:22,070 --> 00:05:24,640
and that's everything from
just how you float and move

113
00:05:24,640 --> 00:05:29,080
around to sleeping at night in a
sleeping bag that you just kind

114
00:05:29,080 --> 00:05:31,380
of float in and there's
no pressure points

115
00:05:31,380 --> 00:05:34,880
and your body just can

completely relax while you're

116
00:05:34,880 --> 00:05:38,530
in space and so it
is very comfortable.

117
00:05:38,530 --> 00:05:45,530
>> What was it like on NEEMO 9?

118
00:05:45,530 --> 00:05:50,470
>> Nicole Stott: What
was it like on NEEMO 9?

119
00:05:50,470 --> 00:05:52,720
Well, when-- it was
really awesome.

120
00:05:52,720 --> 00:05:56,760
When I had the chance to do that
NEEMO 9 Mission I hadn't flown

121
00:05:56,760 --> 00:06:00,620
in space yet so I talked
to a lot of the people

122
00:06:00,620 --> 00:06:04,400
who had done the earlier NEEMO
Missions before me and several

123
00:06:04,400 --> 00:06:06,450
of them had flown
in space before.

124
00:06:06,450 --> 00:06:10,960
And they said to me that
I would find probably

125
00:06:10,960 --> 00:06:15,790
that this will be the closest
thing that compares to flying

126
00:06:15,790 --> 00:06:18,150
or living and working
on a space station.

127
00:06:18,150 --> 00:06:20,190
And I remember doing
that mission and we're

128
00:06:20,190 --> 00:06:23,580
in this habitat or
this I know it's almost

129
00:06:23,580 --> 00:06:27,060
like a submarine kind of
thing that sits on the bottom

130
00:06:27,060 --> 00:06:29,850
of the ocean and
about the size of one

131
00:06:29,850 --> 00:06:31,410
of the modules on
the space station.

132
00:06:31,410 --> 00:06:33,800
And I remember being in there
thinking just how incredible it

133
00:06:33,800 --> 00:06:37,530
was that we were in this place
where you couldn't just walk

134
00:06:37,530 --> 00:06:40,500
out the door without having
special equipment on and you had

135
00:06:40,500 --> 00:06:43,690
to think about what was going on
with the systems and the stuff

136
00:06:43,690 --> 00:06:45,640
that make the place
work all the time

137
00:06:45,640 --> 00:06:47,840
and how you operate differently.

138
00:06:47,840 --> 00:06:50,780
And then after flying
in space it just was,

139
00:06:50,780 --> 00:06:52,900
it was exactly what these
other people had said to me.

140
00:06:52,900 --> 00:06:58,250
It was the perfect place to
learn about how to live and work

141
00:06:58,250 --> 00:07:01,030
in an environment that's not
like we have in our houses

142
00:07:01,030 --> 00:07:02,360
where we can just walk outside

143
00:07:02,360 --> 00:07:05,490
and breathe the air
and move freely.

144
00:07:05,490 --> 00:07:09,640
We have to all the time think
about working differently

145
00:07:09,640 --> 00:07:12,650
and keeping ourselves safe
and wearing the equipment

146

00:07:12,650 --> 00:07:15,230
that you need to live and work
in that kind of environment.

147
00:07:15,230 --> 00:07:19,560
So it was really, really
cool and to be on the bottom

148
00:07:19,560 --> 00:07:24,020
of the ocean for three weeks,
being able to go out and dive

149
00:07:24,020 --> 00:07:27,790
from that habitat and experience
the environment around there,

150
00:07:27,790 --> 00:07:32,790
it's very comparable to me to
that experience I had being able

151
00:07:32,790 --> 00:07:35,700
to do a space walk on the
space station and being able

152
00:07:35,700 --> 00:07:39,440
to experience that in a very
different way, to see our earth

153
00:07:39,440 --> 00:07:42,940
in a different way and to
just appreciate it like that

154
00:07:42,940 --> 00:07:45,910
from a perspective that's
very different than kind

155
00:07:45,910 --> 00:07:51,340
of that we have kind of moving
across the surface of earth.

156

00:07:51,340 --> 00:07:53,480
I highly recommend it.

157
00:07:53,480 --> 00:07:58,630
>> Thank you.

158
00:08:04,370 --> 00:08:06,600
>> Hi. My name is Brian.

159
00:08:06,600 --> 00:08:07,720
>> Nicole Stott: Hi.

160
00:08:07,720 --> 00:08:13,540
>> In the future will you
guys make special technology

161
00:08:13,540 --> 00:08:16,570
to pass Venus?

162
00:08:16,570 --> 00:08:18,420
>> Josh Farley: Will
you go pass Venus?

163
00:08:18,420 --> 00:08:19,290
Is that what you--

164
00:08:19,290 --> 00:08:19,470
>> Nicole Stott: Yeah.

165
00:08:19,470 --> 00:08:21,770
Well, you know, right
now we have technology

166
00:08:21,770 --> 00:08:24,770
that we don't have people
onboard the spacecraft that do

167
00:08:24,770 --> 00:08:27,770
that but we have all

kinds of robotic missions

168
00:08:27,770 --> 00:08:29,760
that take us outside
of lower earth orbit,

169
00:08:29,760 --> 00:08:32,980
take us past the moon,
past Mars and then

170
00:08:32,980 --> 00:08:36,580
in the other direction outside
into the solar system as well,

171
00:08:36,580 --> 00:08:38,530
where we're learning
all kinds of things

172
00:08:38,530 --> 00:08:40,400
about the other planets
and our solar system

173
00:08:40,400 --> 00:08:42,410
as well as outside of it.

174
00:08:42,410 --> 00:08:47,120
And so I think the natural path
with the technology will be just

175
00:08:47,120 --> 00:08:50,200
like we're looking at taking
people to Mars someday,

176
00:08:50,200 --> 00:08:53,570
we'll be looking at going
further and further out away

177
00:08:53,570 --> 00:09:00,330
from our kind of earthly place
and exploring the solar system

178
00:09:00,330 --> 00:09:04,270
and the universe even more
with people onboard as well.

179
00:09:04,270 --> 00:09:05,810
So and that's one of the things

180
00:09:05,810 --> 00:09:07,660
that we're using the space
station for right now.

181
00:09:07,660 --> 00:09:10,700
We're in lower earth orbit,
we're what 200 hundred

182
00:09:10,700 --> 00:09:12,840
and something miles
above the earth

183
00:09:12,840 --> 00:09:15,760
which doesn't really seem all
that far but just by being

184
00:09:15,760 --> 00:09:17,530
in that place we can
learn more and more

185
00:09:17,530 --> 00:09:21,050
about how our bodies behave
in space and what we need

186
00:09:21,050 --> 00:09:24,300
to pay attention to there
and also about the technology

187
00:09:24,300 --> 00:09:28,130
like engines, rocket
engines and fuel and food

188
00:09:28,130 --> 00:09:31,130
and all those kinds of things
that we'll need to go further

189
00:09:31,130 --> 00:09:33,910
and further away
from earth someday.

190
00:09:35,350 --> 00:09:36,980
Thank you.

191
00:09:38,760 --> 00:09:41,090
>> Hi. My name is Jasmine.

192
00:09:41,090 --> 00:09:45,910
I was wondering how you
use the restroom in space.

193
00:09:45,910 --> 00:09:47,580
>> Nicole Stott: How you
use the restroom in space.

194
00:09:47,580 --> 00:09:50,630
Well, you know, that's a really
good question and it's one

195
00:09:50,630 --> 00:09:54,320
of those things that it's
just kind of the same

196
00:09:54,320 --> 00:09:56,520
and then it's very different
to what we do here on earth

197
00:09:56,520 --> 00:09:59,360
and I consider those
things to be part

198
00:09:59,360 --> 00:10:03,250

of what I consider the whole
adventure of flying in space is

199
00:10:03,250 --> 00:10:06,820
that the uniqueness of it
and kind of a fun side of it,

200
00:10:06,820 --> 00:10:08,680
the adventure side of it
was that it's not going

201
00:10:08,680 --> 00:10:11,600
to be exactly like what
we do down here on earth.

202
00:10:11,600 --> 00:10:16,140
But in space you have we'll go
to number one, number two route

203
00:10:16,140 --> 00:10:19,480
and you have the capability
to deal with both of those

204
00:10:19,480 --> 00:10:24,880
and for number two it's kind of
like a camp potty where you use

205
00:10:24,880 --> 00:10:28,990
that to contain the solid
waste and then that gets burnt

206
00:10:28,990 --> 00:10:31,480
up in the atmosphere
some day in a space craft

207
00:10:31,480 --> 00:10:34,250
that takes trash away
from the space station.

208
00:10:34,250 --> 00:10:37,960

And for number one
it's basically a hose,

209
00:10:37,960 --> 00:10:40,970
we call a urine hose
that has a vacuum on it

210
00:10:40,970 --> 00:10:44,030
and you just take
advantage of that system.

211
00:10:44,030 --> 00:10:47,180
It contains the urine and then
one of the really neat things

212
00:10:47,180 --> 00:10:51,180
about what happens there is
like with the space station

213
00:10:51,180 --> 00:10:55,870
as a whole where we want to
be as independent a spacecraft

214
00:10:55,870 --> 00:10:59,350
as possible not relying on
earth resources all of the time

215
00:10:59,350 --> 00:11:05,050
to get us what we need, we
recycle all of our liquids

216
00:11:05,050 --> 00:11:07,710
and moisture on board
station and do that in a way

217
00:11:07,710 --> 00:11:10,860
that allows us to generate
new clean water and also water

218
00:11:10,860 --> 00:11:12,680

to use in our technical
systems too.

219
00:11:12,680 --> 00:11:15,720
So really kind of a neat
process that goes on onboard

220
00:11:15,720 --> 00:11:20,340
and hopefully that answers
a little bit about what it's

221
00:11:20,340 --> 00:11:22,210
like to go to the
bathroom in space.

222
00:11:22,210 --> 00:11:23,830
>> Josh Farley: If you guys
want to see it and you go

223
00:11:23,830 --> 00:11:25,530
to YouTube maybe your
teacher can do this.

224
00:11:25,530 --> 00:11:29,600
It's a clean video but go to
YouTube and type in space potty

225
00:11:29,600 --> 00:11:31,560
and you'll see a video that
we do with Mike Massimino

226
00:11:31,560 --> 00:11:33,280
and other astronauts
here a few years ago.

227
00:11:33,280 --> 00:11:34,780
It's the shuttle potty
that you're going

228
00:11:34,780 --> 00:11:38,020

to see it's not space agent
potty but you'll get the idea.

229
00:11:38,020 --> 00:11:40,930
It's a very descriptive
video so enjoy.

230
00:11:40,930 --> 00:11:42,480
>> Nicole Stott: It's all about
the vacuum just like space.

231
00:11:42,480 --> 00:11:47,790
It's all about the vacuum.

232
00:11:47,790 --> 00:11:51,570
>> Josh Farley: Who's next?

233
00:11:51,570 --> 00:11:56,220
>> Hi. My name is Kathryn.

234
00:11:56,220 --> 00:11:58,770
>> A little bit louder.

235
00:11:58,770 --> 00:12:02,200
>> Hi. My name is Kathryn.

236
00:12:02,200 --> 00:12:04,110
>> Nicole Stott: Hi Kathryn.

237
00:12:04,110 --> 00:12:05,370
>> Are the missions really hard?

238
00:12:05,370 --> 00:12:07,150
>> Nicole Stott: Are the
missions really hard?

239
00:12:07,150 --> 00:12:10,130
Well you know that's kind
of hard to answer actually

240
00:12:10,130 --> 00:12:13,030
because we do so much
training before our missions

241
00:12:13,030 --> 00:12:15,710
to prepare us for
what we know is going

242
00:12:15,710 --> 00:12:16,910
to happen when we're onboard.

243
00:12:16,910 --> 00:12:20,230
All the science we're going
to do, the maintenance tasks

244
00:12:20,230 --> 00:12:22,470
that we have to work on each
day, the way we're going

245
00:12:22,470 --> 00:12:25,800
to exercise and eat when we're
up there and that kind of thing

246
00:12:25,800 --> 00:12:28,650
so that doesn't really seem
hard when you're up there

247
00:12:28,650 --> 00:12:30,530
because you're kind
of expecting it.

248
00:12:30,530 --> 00:12:32,590
So I think that the
thing that's kind

249
00:12:32,590 --> 00:12:34,620
of hard is there
two things really.

250
00:12:34,620 --> 00:12:38,440
One is when something doesn't go
like you expect it and you need

251
00:12:38,440 --> 00:12:40,800
to work differently
with the ground team

252
00:12:40,800 --> 00:12:43,970
and your crew members to make
sure that you get those kinds

253
00:12:43,970 --> 00:12:46,730
of things all worked out,
that's a little bit difficult

254
00:12:46,730 --> 00:12:50,320
or challenging but again our
training also prepares us

255
00:12:50,320 --> 00:12:52,410
for dealing with
those kinds of things

256
00:12:52,410 --> 00:12:54,390
but I'd say probably
the hardest thing

257
00:12:54,390 --> 00:12:57,810
about a long duration space
flight especially is being away

258
00:12:57,810 --> 00:12:59,040
from your family.

259
00:12:59,040 --> 00:13:02,580
And I think it'll be a great
day when we have families living

260

00:13:02,580 --> 00:13:05,010
and working in space together
and it's just kind of one

261
00:13:05,010 --> 00:13:07,970
of those places you go
to work everyday and--

262
00:13:07,970 --> 00:13:11,680
but for me that was probably
the hardest part was being away

263
00:13:11,680 --> 00:13:13,650
from family.

264
00:13:13,650 --> 00:13:20,530
>> Hi. My name is Abigail.

265
00:13:20,530 --> 00:13:23,510
>> Nicole Stott: Hi Abigail.

266
00:13:24,600 --> 00:13:29,950
>> I was wondering whenever you
in elementary school like us

267
00:13:29,950 --> 00:13:35,900
like when you decided to
be an astronaut and why?

268
00:13:35,900 --> 00:13:36,920
>> Nicole Stott: Okay.

269
00:13:36,920 --> 00:13:39,910
Well, in elementary
school and it was actually

270
00:13:39,910 --> 00:13:42,500
when was I seven
years old I think

271
00:13:42,500 --> 00:13:45,280
when we had the moon landing.

272
00:13:45,280 --> 00:13:49,390
And I remember watching the
moon landing when I was seven

273
00:13:49,390 --> 00:13:53,090
and thinking like I said
before thinking wow,

274
00:13:53,090 --> 00:13:55,480
this is really cool.

275
00:13:55,480 --> 00:14:00,690
How cool is it that dot of light
I look at in space at night

276
00:14:00,690 --> 00:14:02,560
that there's people up there.

277
00:14:02,560 --> 00:14:06,070
But I have to tell you at that
point maybe I wasn't smart

278
00:14:06,070 --> 00:14:08,830
enough to think it or whatever

279
00:14:08,830 --> 00:14:12,220
but I really didn't think
it was something I could do

280
00:14:12,220 --> 00:14:13,680
for whatever reason.

281
00:14:13,680 --> 00:14:18,260
And like I said before too my
dad liked building airplanes

282
00:14:18,260 --> 00:14:20,550
and I spent a lot of
time out at an airport

283
00:14:20,550 --> 00:14:25,300
where I saw what flying was all
about and that kind of thing

284
00:14:25,300 --> 00:14:28,620
and that was really
very interesting to me.

285
00:14:28,620 --> 00:14:30,390
And flying the first
time and having

286
00:14:30,390 --> 00:14:31,480
that perspective just even

287
00:14:31,480 --> 00:14:33,690
from a little airplane
seeing how cars looked

288
00:14:33,690 --> 00:14:35,840
like matched box
cars and all that

289
00:14:35,840 --> 00:14:38,500
and you get this
different view on earth.

290
00:14:38,500 --> 00:14:41,690
I think that's what kind of
ultimately led me down the path

291
00:14:41,690 --> 00:14:44,290
of at least wanting to fly

292
00:14:44,290 --> 00:14:47,760

and ultimately thinking wow what
better place to fly than space.

293
00:14:47,760 --> 00:14:52,870
And really thankful that I had a
job at NASA where I was working

294
00:14:52,870 --> 00:14:55,440
with some of the space craft
before I ever even applied

295
00:14:55,440 --> 00:14:58,220
to be an astronaut and could
see what that was all about

296
00:14:58,220 --> 00:14:59,820
and worked with the people

297
00:14:59,820 --> 00:15:03,030
that put all those
amazing vehicles together

298
00:15:03,030 --> 00:15:04,740
and then later have
the opportunity

299
00:15:04,740 --> 00:15:06,160
to actually fly on them.

300
00:15:06,160 --> 00:15:06,930
And I'm going to mention this

301
00:15:06,930 --> 00:15:08,520
because I have my
shirt on for today.

302
00:15:08,520 --> 00:15:13,550
My STS128 Mission Patch is
on this shirt and today was,

303
00:15:13,550 --> 00:15:18,100
what is it, the fourth
anniversary of the mission,

304
00:15:18,100 --> 00:15:20,610
the STS128 Mission our
first day in space.

305
00:15:20,610 --> 00:15:23,620
So this is my little
memory of trying

306
00:15:23,620 --> 00:15:26,370
to help me remember
four years ago

307
00:15:26,370 --> 00:15:28,820
that really cool first
time flying in space.

308
00:15:28,820 --> 00:15:32,280
And I can tell you I'm thankful
for the pictures and video

309
00:15:32,280 --> 00:15:36,790
because it's nice to go back and
see just how wonderful that was

310
00:15:36,790 --> 00:15:39,060
and I've got all the feelings
and everything inside me

311
00:15:39,060 --> 00:15:41,010
about it and my particular
memories but to be able

312
00:15:41,010 --> 00:15:44,930
to go back and look at that is
pretty cool too and to still be

313
00:15:44,930 --> 00:15:47,330
in contact and friends with
my crewmates is really neat

314
00:15:47,330 --> 00:15:48,260
as well.

315
00:15:48,260 --> 00:15:50,180
>> That's cool.

316
00:15:50,180 --> 00:15:51,840
Thank you.

317
00:15:55,900 --> 00:15:57,190
>> Hi. My name is [inaudible].

318
00:15:57,190 --> 00:15:58,980
My question is what does it feel

319
00:15:58,980 --> 00:16:02,060
like when you're
blasting off into space?

320
00:16:02,060 --> 00:16:04,190
>> Nicole Stott: Way
awesome is what it feels like

321
00:16:04,190 --> 00:16:07,620
and you think you've got
yourself all prepared

322
00:16:07,620 --> 00:16:10,610
for what it's going to
feel like and I worked

323
00:16:10,610 --> 00:16:15,800
at Kennedy Space Center for a
long time maybe longer than some

324
00:16:15,800 --> 00:16:20,270
of you are alive yet and so I
had the chance really the good

325
00:16:20,270 --> 00:16:24,500
fortunate to watch a
number of shuttle launches

326
00:16:24,500 --> 00:16:28,000
and other launches from
Cape Canaveral and things

327
00:16:28,000 --> 00:16:30,130
so I always imagined what
it would be like and I

328
00:16:30,130 --> 00:16:32,780
of course talked to other
people who had done it

329
00:16:32,780 --> 00:16:33,880
to see what it feels like.

330
00:16:33,880 --> 00:16:36,390
But let me just tell you that
you have kind of this impression

331
00:16:36,390 --> 00:16:39,510
of what it's going to be and
it's this much more impressive

332
00:16:39,510 --> 00:16:43,570
than you can ever imagine
and it's just everything

333
00:16:43,570 --> 00:16:47,410
from the way it feels and sounds
and what it's doing to your body

334

00:16:47,410 --> 00:16:50,960
and how you're shaking and
woohooing as you're going

335
00:16:50,960 --> 00:16:54,660
and then just after that eight
or so minutes this just kind

336
00:16:54,660 --> 00:16:58,790
of beauty, beautiful just
relaxing, comfortable, floating,

337
00:16:58,790 --> 00:17:02,200
quiet ride once you're in orbit.

338
00:17:02,200 --> 00:17:05,210
And it is an incredible ride.

339
00:17:05,210 --> 00:17:06,570
>> Josh Farley: And those
of us that saw it in person,

340
00:17:06,570 --> 00:17:08,650
obviously I have never been in
there and Nicole has but being

341
00:17:08,650 --> 00:17:09,840
at the Kennedy Space Center

342
00:17:09,840 --> 00:17:11,120
and watching these
things lift off wasn't

343
00:17:11,120 --> 00:17:13,720
like anything you can even--
it's not like the movies.

344
00:17:13,720 --> 00:17:15,320
It's not like you see on TV.

345
00:17:15,320 --> 00:17:18,350
Because you're about four miles
away, three or four miles away

346
00:17:18,350 --> 00:17:20,920
and you see it before you
hear it so you see it go off.

347
00:17:20,920 --> 00:17:22,340
You see all the smoke
and the vapor

348
00:17:22,340 --> 00:17:24,470
and it's just a very
bright light and all

349
00:17:24,470 --> 00:17:26,590
of a sudden you start to
kind of hear this rumble

350
00:17:26,590 --> 00:17:28,250
and it just hits
you like a wall.

351
00:17:28,250 --> 00:17:30,510
It is-- imagine the
loudest train;

352
00:17:30,510 --> 00:17:32,530
loudest airplane you've
ever heard in your life

353
00:17:32,530 --> 00:17:34,130
and it just rattles
you like crazy.

354
00:17:34,130 --> 00:17:35,980
It's amazing and
then it's over with.

355
00:17:35,980 --> 00:17:37,790
>> Nicole Stott: I get goose
bumps just thinking about it?

356
00:17:37,790 --> 00:17:37,950
>> Josh Farley: Yes.

357
00:17:37,950 --> 00:17:38,470
It's a good question.

358
00:17:38,470 --> 00:17:40,840
>> Nicole Stott:
Watching or being on it.

359
00:17:42,600 --> 00:17:44,630
>> Josh Farley: Yes.

360
00:17:44,630 --> 00:17:48,670
>> Thank you

361
00:17:48,670 --> 00:17:52,630
>> Hi. I'm Joe.

362
00:17:52,630 --> 00:17:54,300
>> Nicole Stott: Hi.

363
00:17:54,300 --> 00:17:58,580
>> What is the purpose of the
International Space Station?

364
00:17:58,580 --> 00:17:59,790
>> Josh Farley: Good question.

365
00:17:59,790 --> 00:18:00,460
>> Nicole Stott:
Awesome question.

366
00:18:00,460 --> 00:18:02,440

What is the purpose of the
International Space Station?

367
00:18:02,440 --> 00:18:06,790
Well, you know, I think the
purpose over time has evolved

368
00:18:06,790 --> 00:18:09,070
but it's ultimately evolved
to what the real purpose

369
00:18:09,070 --> 00:18:10,530
of the space station is.

370
00:18:10,530 --> 00:18:13,390
We had tasks along the way
while we were building the space

371
00:18:13,390 --> 00:18:15,680
station where we were
really kind of proving

372
00:18:15,680 --> 00:18:18,090
out if we could even
do this kind of thing,

373
00:18:18,090 --> 00:18:22,380
this very complex thing in
space, not just as one country

374
00:18:22,380 --> 00:18:24,890
but as 15 countries
putting all different kinds

375
00:18:24,890 --> 00:18:29,000
of hardware together and we very
successfully met that challenge

376
00:18:29,000 --> 00:18:32,700
and now we have just this

magnificent facility that's

377
00:18:32,700 --> 00:18:34,380
orbiting our earth everyday.

378
00:18:34,380 --> 00:18:39,890
And the purpose of the space
station is for us to live

379
00:18:39,890 --> 00:18:43,650
and work up there and to do
the research that's necessary

380
00:18:43,650 --> 00:18:48,210
or that we can in this very
unique zero gravity environment

381
00:18:48,210 --> 00:18:49,470
that will help us learn more

382
00:18:49,470 --> 00:18:52,520
about how we can live
better here on earth

383
00:18:52,520 --> 00:18:55,610
but also how we can
further explore outside

384
00:18:55,610 --> 00:18:56,760
of lower earth orbit.

385
00:18:56,760 --> 00:19:00,410
And it is just a magnificent
place for doing this.

386
00:19:00,410 --> 00:19:04,150
When I was up there, I think
on a daily basis we had

387

00:19:04,150 --> 00:19:07,420
over 100 active investigations
going on.

388
00:19:07,420 --> 00:19:08,560
>> Josh Farley: They've
got 200 now.

389
00:19:08,560 --> 00:19:08,820
>> Nicole Stott: Yeah.

390
00:19:08,820 --> 00:19:11,390
And that's whether-- a
crewmember could be interfacing

391
00:19:11,390 --> 00:19:14,900
with it directly, actually
working the science experiments

392
00:19:14,900 --> 00:19:17,410
like you guys do I'm sure in
some of your science classes

393
00:19:17,410 --> 00:19:20,150
in school or helping the people

394
00:19:20,150 --> 00:19:23,850
on the ground work
the experiment onboard

395
00:19:23,850 --> 00:19:26,900
and that's everything
from learning more

396
00:19:26,900 --> 00:19:29,200
about our own bodies
and learning

397
00:19:29,200 --> 00:19:31,690
about how fuels burns

more efficiently.

398
00:19:31,690 --> 00:19:33,870
How materials are developed.

399
00:19:33,870 --> 00:19:37,710
I mean, every science area
you can imagine is being

400
00:19:37,710 --> 00:19:40,570
investigated in some way onboard
the space station and it's

401
00:19:40,570 --> 00:19:44,120
because it provides a very
unique environment for looking

402
00:19:44,120 --> 00:19:46,720
at things and how
they work in a way

403
00:19:46,720 --> 00:19:48,730
that we just can't
do here on earth.

404
00:19:48,730 --> 00:19:50,340
And so it gives all kinds of new

405
00:19:50,340 --> 00:19:52,140
and interesting answers
to things.

406
00:19:52,140 --> 00:19:54,660
That whole thing we talked
about with the water.

407
00:19:54,660 --> 00:19:58,490
You look at water in space and
what it does and how it sticks

408
00:19:58,490 --> 00:20:00,980
to your hands and then
scientists start thinking

409
00:20:00,980 --> 00:20:04,180
about well, in space we could
use water or some other liquid

410
00:20:04,180 --> 00:20:07,870
in a very different way than
we do here on earth perhaps

411
00:20:07,870 --> 00:20:11,350
to simplify the way we
build rocket engines

412
00:20:11,350 --> 00:20:13,040
and lubricate things.

413
00:20:13,040 --> 00:20:15,890
Why have big balls, metal ball
bearings lubricating a system

414
00:20:15,890 --> 00:20:17,390
if you could have
a liquid that does

415
00:20:17,390 --> 00:20:19,860
that because it behaves
differently in space

416
00:20:19,860 --> 00:20:21,070
or the way crystals grow.

417
00:20:21,070 --> 00:20:22,940
They grow perfectly in
[inaudible] environment

418
00:20:22,940 --> 00:20:26,760

and we can learn more and more
things about how our bodies work

419
00:20:26,760 --> 00:20:29,130
and how medicines could be made

420
00:20:29,130 --> 00:20:31,890
or solving just really
cool problems

421
00:20:31,890 --> 00:20:35,990
because we have this
laboratory in space to do that

422
00:20:35,990 --> 00:20:39,040
and that ultimately is the
purpose, this laboratory

423
00:20:39,040 --> 00:20:42,680
in space to help us live better
here on earth and figure out how

424
00:20:42,680 --> 00:20:46,200
to explore outside of
earth's atmosphere as well.

425
00:20:46,200 --> 00:20:46,960
>> Josh Farley: Good question.

426
00:20:46,960 --> 00:20:53,990
>> Hi. My name is Jake
and how long does it take

427
00:21:00,760 --> 00:20:56,510
to be an astronaut?

428
00:21:00,760 --> 00:21:04,030
Well, you start in
school kind of right

429
00:21:04,030 --> 00:21:06,910
where you guys are right now
and a lot of it has to do

430
00:21:06,910 --> 00:21:11,390
with paying attention to the
stuff you enjoy doing and for me

431
00:21:11,390 --> 00:21:14,530
and I think for most people who
are astronauts actually I think,

432
00:21:14,530 --> 00:21:16,890
we're in this Mission
Control Center here now too

433
00:21:16,890 --> 00:21:19,660
with the folks that
support the astronauts

434
00:21:19,660 --> 00:21:21,620
that are on the space station.

435
00:21:21,620 --> 00:21:24,270
It was all about taking
those interests that you have

436
00:21:24,270 --> 00:21:27,220
in science and math
and engineering

437
00:21:27,220 --> 00:21:30,000
and maybe not even knowing that
it was an interesting science

438
00:21:30,000 --> 00:21:33,160
in engineering and math at
that time but paying attention

439

00:21:33,160 --> 00:21:36,240
to those things and letting
that be what helps guide you

440
00:21:36,240 --> 00:21:37,430
through school and stuff.

441
00:21:37,430 --> 00:21:41,640
And for me, I think the flying
thing was the big thing I was

442
00:21:41,640 --> 00:21:42,650
interested in.

443
00:21:42,650 --> 00:21:47,290
And so wanting to know how
things fly, wanting to figure

444
00:21:47,290 --> 00:21:49,040
out how to build things that fly

445
00:21:49,040 --> 00:21:51,880
and maybe then one day flying
them myself was the thing

446
00:21:51,880 --> 00:21:53,430
that motivated me.

447
00:21:53,430 --> 00:21:56,650
So there's a lot of kind of
basic things you have to do

448
00:21:56,650 --> 00:22:00,250
in school to qualify to even
interview as an astronaut

449
00:22:00,250 --> 00:22:03,190
and that's I think very well
documented on our website.

450
00:22:03,190 --> 00:22:05,680
You can go on-- yeah, it's math
and science, math and science

451
00:22:05,680 --> 00:22:11,430
and it is fun and but there's
really good information

452
00:22:11,430 --> 00:22:14,620
on the website about what
it takes to apply and a lot

453
00:22:14,620 --> 00:22:20,290
of that is just a degree in a
math or science area of study

454
00:22:20,290 --> 00:22:23,640
and then working in that area
for a while, a couple of years.

455
00:22:23,640 --> 00:22:25,140
I've seen people that
have come straight

456
00:22:25,140 --> 00:22:29,260
out of their university work
and been selected as astronaut

457
00:22:29,260 --> 00:22:31,840
but it's really kind
of a focused science

458
00:22:31,840 --> 00:22:33,670
and math driven thing.

459
00:22:33,670 --> 00:22:36,370
But you got to enjoy what
you're doing along the way

460

00:22:36,370 --> 00:22:41,000
and that'll take you down those
paths of engineering, math,

461
00:22:41,000 --> 00:22:43,650
science if that's
what you're all about.

462
00:22:43,650 --> 00:22:43,980
>> Josh Farley: That's it.

463
00:22:43,980 --> 00:22:45,270
I think that's what
everybody always says.

464
00:22:45,270 --> 00:22:47,010
You've got to go find
something that you love to do

465
00:22:47,010 --> 00:22:49,140
and you guys have got
plenty of time to do that

466
00:22:49,140 --> 00:22:52,450
but life is too short to have a
boring job so go find something

467
00:22:52,450 --> 00:22:55,340
that you really like to do and
it's interesting what happens

468
00:22:55,340 --> 00:22:57,780
to you whenever you do that.

469
00:22:57,780 --> 00:22:58,170
>> Nicole Stott: Yeah.

470
00:22:58,170 --> 00:23:06,060
>> My question is why does
NASA tradeoff astronauts

471
00:23:06,060 --> 00:23:11,420
to go to the space station?

472
00:23:11,420 --> 00:23:11,720
>> Nicole Stott: Okay.

473
00:23:11,720 --> 00:23:13,820
So why does NASA
tradeoff astronauts

474
00:23:13,820 --> 00:23:14,970
to go the space station?

475
00:23:14,970 --> 00:23:19,110
. So right now we have 6 crew
members on board and three

476
00:23:19,110 --> 00:23:20,360
of them are about to come home.

477
00:23:20,360 --> 00:23:21,070
>> Josh Farley: September 10th.

478
00:23:21,070 --> 00:23:22,300
>> Nicole Stott: In a
couple of weeks here,

479
00:23:22,300 --> 00:23:28,980
so we do that because first
of all, we have spacecraft

480
00:23:28,980 --> 00:23:31,400
that have kind of a
limited lifetime onboard

481
00:23:31,400 --> 00:23:34,870
and so they have about
seven months' worth of time

482
00:23:34,870 --> 00:23:37,750
that they can stay up on
the space station before the

483
00:23:37,750 --> 00:23:40,210
spaceship that you rode
up on needs to come back.

484
00:23:40,210 --> 00:23:42,730
So that kind of drives
the amount of time

485
00:23:42,730 --> 00:23:46,790
that the astronauts can stay
up there too and so each

486
00:23:46,790 --> 00:23:49,060
of those spacecraft has a
seat for three and three

487
00:23:49,060 --> 00:23:51,700
of the people come down and then
three more people can go up.

488
00:23:51,700 --> 00:23:54,220
And so there's that piece of it.

489
00:23:54,220 --> 00:23:58,570
But there's also the piece that
says we want to rotate people

490
00:23:58,570 --> 00:24:01,710
through so we get a different
experience base up there.

491
00:24:01,710 --> 00:24:04,560
We have different people
living and working in space

492
00:24:04,560 --> 00:24:11,210
and that experience thing and
then we also have you know,

493
00:24:11,210 --> 00:24:13,870
there's things about
the environment in space

494
00:24:13,870 --> 00:24:16,760
that make us want
to limit the amount

495
00:24:16,760 --> 00:24:18,560
of time we have people up there.

496
00:24:18,560 --> 00:24:22,570
So right now with what we know
about how our bodies respond

497
00:24:22,570 --> 00:24:27,140
to space whether that's the way
our muscles and our bones react

498
00:24:27,140 --> 00:24:31,210
to being in space or
our cardiac, our heart

499
00:24:31,210 --> 00:24:34,070
and our other systems respond.

500
00:24:34,070 --> 00:24:37,690
We are managing that as well
and six months really seems

501
00:24:37,690 --> 00:24:41,170
to be the kind of time
that cycling astronauts

502
00:24:41,170 --> 00:24:42,970

to the space station is best.

503
00:24:42,970 --> 00:24:45,220
Now we do have some astronauts
that are going to be going

504
00:24:45,220 --> 00:24:49,390
up for a year and that will
gives us the opportunity

505
00:24:49,390 --> 00:24:53,230
to look a little bit
differently at how crewmembers

506
00:24:53,230 --> 00:24:56,870
and human beings will respond
to that space environment

507
00:24:56,870 --> 00:24:59,430
and because of what we've
done with crewmembers prior

508
00:24:59,430 --> 00:25:02,210
to this we feel very comfortable
sending somebody there

509
00:25:02,210 --> 00:25:04,540
for a year and allowing
them to experience that way

510
00:25:04,540 --> 00:25:06,410
and then we'll just rotate
our vehicles a little bit

511
00:25:06,410 --> 00:25:07,820
differently so that
you're not going up

512
00:25:07,820 --> 00:25:09,470
and coming down on the same one.

513
00:25:09,470 --> 00:25:10,540
>> Josh Farley: Yeah.

514
00:25:10,540 --> 00:25:12,840
I think that was our
last question I believe.

515
00:25:12,840 --> 00:25:15,130
So we want to thank you
our friends in there

516
00:25:15,130 --> 00:25:15,930
at McWhirter Elementary.

517
00:25:15,930 --> 00:25:17,800
You're not very far
away from us here

518
00:25:17,800 --> 00:25:20,110
at the Johnson Space Center,
so we hope you guys come

519
00:25:20,110 --> 00:25:23,070
and say hi some time and take
a look at this awesome room

520
00:25:23,070 --> 00:25:23,930
that we're sitting in right now,

521
00:25:23,930 --> 00:25:24,960
this is the Mission
Control Center

522
00:25:24,960 --> 00:25:26,810
where they control everything
on board of the space station.

523
00:25:26,810 --> 00:25:29,340

So come by and take a look at
it and maybe you'll have one

524
00:25:29,340 --> 00:25:31,950
of these jobs one time or maybe
you'll be like Nicole over here

525
00:25:31,950 --> 00:25:34,450
and actually fly space a couple
of times so thank you guys

526
00:25:34,450 --> 00:25:37,770
for joining us study hard
and have a good semester.