



Document held by the woman in the red top, containing text that is partially legible but mostly obscured by the angle and lighting.

1
00:00:03,870 --> 00:00:06,680
WELCOME TO A NASA LIVE CHAT.

2
00:00:06,680 --> 00:00:13,960
I'M WITH TWO OF THE FOUR
ASTRONAUTS WHO WILL TEST ON THE

3
00:00:13,960 --> 00:00:15,290
CREW PROGRAM.

4
00:00:15,290 --> 00:00:20,510
WE HAVE BEEN COLLECTING
QUESTIONS.

5
00:00:20,510 --> 00:00:23,670
WE HAD AN ENTHUSIASTIC RESPONSE
WHICH WE ARE VERY EXCITED ABOUT.

6
00:00:23,670 --> 00:00:25,090
WE'RE STILL ACCEPTING QUESTIONS.

7
00:00:25,090 --> 00:00:27,369
WE INVITE PEOPLE TO SEND THOSE
IN.

8
00:00:27,369 --> 00:00:30,489
THE FIRST QUESTION IS GOING TO
BOB.

9
00:00:30,489 --> 00:00:33,240
THAT IS FROM TWITTER USER IAN.

10
00:00:33,240 --> 00:00:37,260
WHAT WOULD BE YOUR ELEVATOR
PITCH FOR NASA?

11
00:00:37,260 --> 00:00:40,370
MY ELEVATOR PITCH FOR NASA
AND THE COMMERCIAL CREW PROGRAM

12

00:00:40,370 --> 00:00:43,030

IS THAT WE'RE TRYING TO DEVELOP
NEW VEHICLES TO GIVE US AN

13

00:00:43,030 --> 00:00:44,030

ALTERNATIVE.

14

00:00:44,030 --> 00:00:48,329

IT'S IMPORTANT TO HAVE THE
CAPABILITY OUT OF THE UNITED

15

00:00:48,329 --> 00:00:49,329

STATES.

16

00:00:49,329 --> 00:00:51,339

LOOKING FORWARD TO THE DAYS WHEN
THAT HAPPENS.

17

00:00:51,339 --> 00:00:52,719

EXCELLENT.

18

00:00:52,719 --> 00:00:55,249

WHY IS IT IMPORTANT TO THE
FUTURE OF HUMAN SPACE FLIGHT TO

19

00:00:55,249 --> 00:00:57,870

HAVE THIS COMMERCIAL CREW
PROGRAM?

20

00:00:57,870 --> 00:01:01,480

IT INVOLVES ASTRONAUTS
LAUNCHING FROM HERE, THE UNITED

21

00:01:01,480 --> 00:01:02,480

STATES.

22

00:01:02,480 --> 00:01:05,110

WE CAN SHARE THAT WITH PEOPLE

WHO ARE HERE.

23

00:01:05,110 --> 00:01:08,980
BUT IT ALSO INVOLVES THE PUBLIC
AND ALL THE COMPANIES OUT THERE

24

00:01:08,980 --> 00:01:11,790
WHO ARE DEVELOPING NEW
TECHNOLOGIES FOR NEW SPACECRAFT.

25

00:01:11,790 --> 00:01:14,840
SO IT REACHES A LOT FARTHER TO
THE PUBLIC HERE IN THE UNITED

26

00:01:14,840 --> 00:01:15,840
STATES.

27

00:01:15,840 --> 00:01:20,730
AND THEN THAT, OF COURSE, IS
ACCOMPANIED WITH THE KIDS IN

28

00:01:20,730 --> 00:01:23,720
THIS COUNTRY WHO ARE GETTING
READY TO POTENTIALLY FOLLOW IN

29

00:01:23,720 --> 00:01:27,850
OUR FOOTSTEPS AND IT ENFORCES
THE SCIENCE, TECHNOLOGY,

30

00:01:27,850 --> 00:01:30,320
ENGINEER AND MATH PART OF THAT.

31

00:01:30,320 --> 00:01:32,990
WE'RE LOOKING FORWARD TO COMING
BACK TO THE UNITED STATES TO

32

00:01:32,990 --> 00:01:33,990
LAUNCH HERE.

33

00:01:33,990 --> 00:01:36,690
YOU ARE WORKING WITH THE
COMMERCIAL PARTNERS, BOTH BOEING

34
00:01:36,690 --> 00:01:41,300
AND SPACE X THROUGH FINAL PHASES
AND CERTIFICATION.

35
00:01:41,300 --> 00:01:45,570
CAN YOU WALK US THROUGH WHY
THAT'S IMPORTANT THAT YOU BE

36
00:01:45,570 --> 00:01:49,540
INVOLVED AND WHAT THAT MEANS FOR
THE PROGRAM ITSELF?

37
00:01:49,540 --> 00:01:52,460
FROM OUR PERSPECTIVE, IT'S
REALLY IMPORTANT THAT WE HAVE AS

38
00:01:52,460 --> 00:01:55,610
MANY PEOPLE AS POSSIBLE WITH
SOME SPACE FLIGHT EXPERIENCE TO

39
00:01:55,610 --> 00:01:59,050
HELP INFORM THE DESIGNS THAT THE
PARTNERS ARE COMING UP WITH.

40
00:01:59,050 --> 00:02:02,210
SPACE X AND BOEING HAVE A LOT OF
GREAT EXPERIENCE.

41
00:02:02,210 --> 00:02:04,950
BUT OUR ROLE IS TO REALLY HELP
THEM ANTICIPATE SOME CHALLENGES

42
00:02:04,950 --> 00:02:06,870
THAT MIGHT\h-- THEY MIGHT FACE
WHEN THEY ACTUALLY GET THESE

43

00:02:06,870 --> 00:02:11,700
VEHICLES INTO SPACE, MAKE SURE
THAT THEY FIT WELL INTO THE WAY

44
00:02:11,700 --> 00:02:14,360
THAT WE HAVE THE INTERNATIONAL
SPACE STATION OPERATING TODAY.

45
00:02:14,360 --> 00:02:17,019
THERE ARE SOME THINGS THAT MAYBE
THEY DON'T HAVE AS MUCH

46
00:02:17,019 --> 00:02:19,579
EXPERIENCE WITH THAT WE CAN
BRING TO THE TABLE.

47
00:02:19,579 --> 00:02:22,480
FOR EXAMPLE, THE SOYUZ
EXPERIENCE.

48
00:02:22,480 --> 00:02:30,730
WE HAVE TO CHANGE THAT WITH ONE
CREW GOING OFF ON THE SOYUZ AND

49
00:02:30,730 --> 00:02:32,879
ANOTHER GOING OFF TO ANOTHER
VEHICLE.

50
00:02:32,879 --> 00:02:34,939
THAT'S THE EXPERIENCE THAT WE
BRING.

51
00:02:34,939 --> 00:02:37,980
IT'S CRITICAL TO MAKING THE
VEHICLES SUCCESSFUL.

52
00:02:37,980 --> 00:02:41,109
I THINK THAT'S A GREAT POINT
IN YOUR INVOLVEMENT IN

53

00:02:41,109 --> 00:02:42,120
UNDERSTANDING THAT.

54
00:02:42,120 --> 00:02:44,739
THEN WE TALK A LITTLE BIT
ABOUTh-- WE TALKED QUITE A BIT

55
00:02:44,739 --> 00:02:48,499
ABOUT THE SIGNIFICANCE OF HAVING
THESE TWO DIFFERENT SYSTEMS.

56
00:02:48,499 --> 00:02:51,049
WHY IS IT IMPORTANT THAT WE HAVE
TWO SYSTEMS?

57
00:02:51,049 --> 00:02:53,799
SO IT'S GREAT THAT WE HAVE A
COUPLE DIFFERENT COMPANIES

58
00:02:53,799 --> 00:02:55,319
INVOLVED IN ALL OF THIS.

59
00:02:55,319 --> 00:02:57,859
THIS, OF COURSE, WAS SELECTED
FROM OTHER COMPANIES WHO WERE

60
00:02:57,859 --> 00:03:00,840
ALSO BIDDING FOR THIS AS WELL.

61
00:03:00,840 --> 00:03:03,780
WHAT'S NEAT ABOUT HAVING A BUNCH
OF COMPANIES INTERESTED IS THAT

62
00:03:03,780 --> 00:03:07,049
IT INVOLVES MORE PEOPLE AND
THERE'S COMPETITION.

63
00:03:07,049 --> 00:03:11,849
THAT MEANS THAT THINGS ARE
DEVELOPING ON A RAPID PACE AND

64

00:03:11,849 --> 00:03:13,670

THEY'RE TRYING TO DO AS BEST AS
THEY CAN.

65

00:03:13,670 --> 00:03:16,890

SO IT'S REALLY NICE TO HAVE MORE
THAN ONE COMPANY DOING THIS.

66

00:03:16,890 --> 00:03:19,989

IT ALSO\h-- WE HAVE A BACKUP FOR
EACH OTHER IN CASE WE HAVE ANY

67

00:03:19,989 --> 00:03:21,459

ISSUES ALONG THE WAY.

68

00:03:21,459 --> 00:03:23,969

WE HAVE TWO COMPANIES OUT THERE
WORKING TOWARD THIS GOAL TO GET

69

00:03:23,969 --> 00:03:26,049

US BACK TO LAUNCH HERE.

70

00:03:26,049 --> 00:03:27,749

IT REALLY SPURS THE
INNOVATION.

71

00:03:27,749 --> 00:03:29,689

I THINK THAT'S REALLY THE DRIVER
FOR WHAT WE'RE TRYING TO

72

00:03:29,689 --> 00:03:34,530

ACCOMPLISH IS SPURRING
INNOVATION.

73

00:03:34,530 --> 00:03:38,049

THREE EVENTS IN NOW AS
SELECTEES FOR THE COMMERCIAL

74

00:03:38,049 --> 00:03:39,049

CREW PROGRAM.

75

00:03:39,049 --> 00:03:42,279

WHAT HAVE YOUR DAYS LOOKED LIKE
SO FAR WORKING WITH THESE

76

00:03:42,279 --> 00:03:43,430

PARTNERS?

77

00:03:43,430 --> 00:03:45,329

OUR DAYS HAVE BEEN REALLY
BUSY.

78

00:03:45,329 --> 00:03:49,090

FOR ME, THERE'S ALWAYS SOMETHING
MORE TO LEARN OR JUST CATCHING

79

00:03:49,090 --> 00:03:51,170

UP ON THE VEHICLES,
UNDERSTANDING WHERE THE DESIGNS

80

00:03:51,170 --> 00:03:52,439

ARE AND WHERE THEY ARE GOING.

81

00:03:52,439 --> 00:03:55,180

I HAVE HAD SOME WEEKS WHERE I
SPENT THE FIRST HALF OF THE WEEK

82

00:03:55,180 --> 00:04:03,090

IN FLORIDA AND THEN TRAVEL TO
SOUTHERN CALIFORNIA WORKING WITH

83

00:04:03,090 --> 00:04:04,459

THE FOLKS OUT THERE.

84

00:04:04,459 --> 00:04:07,060

OR EVEN IN SOUTHERN CALIFORNIA
MAYBE SEEING SOMETHING

85

00:04:07,060 --> 00:04:10,190

ASSOCIATED WITH THE BOEING
DESIGN ONE MORNING AND THEN

86

00:04:10,190 --> 00:04:12,950

DRIVING OUT TO SPACE X LATER IN
THE AFTERNOON.

87

00:04:12,950 --> 00:04:16,150

SO REALLY SEEING THESE DESIGNS
SIDE BY SIDE AND HELPING US

88

00:04:16,150 --> 00:04:18,180

UNDERSTAND WHERE THE
REQUIREMENTS THAT WE HAVE PUT

89

00:04:18,180 --> 00:04:21,850

TOGETHER MAKE SENSE TO APPLY TO
BOTH PARTNERS IS REALLY

90

00:04:21,850 --> 00:04:22,850

CRITICAL.

91

00:04:22,850 --> 00:04:24,830

YOU ARE BOTH TEST PILOTS.

92

00:04:24,830 --> 00:04:28,889

SO THAT PLAYS A SIGNIFICANT ROLE
IN YOUR INVOLVEMENT IN THESE.

93

00:04:28,889 --> 00:04:31,450

COULD YOU TALK A LITTLE BIT
ABOUT HOW YOUR TEST PILOT

94

00:04:31,450 --> 00:04:34,389

EXPERIENCE HAS PLAYED INTO IT
AND WILL CONTINUE TO PLAY INTO

95

00:04:34,389 --> 00:04:35,389

THE DEVELOPMENT?

96

00:04:35,389 --> 00:04:36,389

SURE.

97

00:04:36,389 --> 00:04:38,919

THERE'S SOME FUNDAMENTALS THAT
YOU LEARN AT TEST PILOT SCHOOL.

98

00:04:38,919 --> 00:04:44,039

PART OF THAT IS APPROACHING THE
ENVELOPE IN A STEP-WISE PROCESS.

99

00:04:44,039 --> 00:04:46,139

I THINK THAT'S WHAT WE BRING TO
THE TABLE.

100

00:04:46,139 --> 00:04:51,949

IN ANY FLIGHT, YOU ARE REACHING
AND REACHING AND REACHING

101

00:04:51,949 --> 00:04:57,460

FARTHER AND TRYING TO UNDERSTAND
HOW THIS MACHINE IS GOING TO

102

00:04:57,460 --> 00:04:58,460

WORK.

103

00:04:58,460 --> 00:05:02,169

SO I THINK\h-- PART OF THAT IS
UNDERSTANDING HOW WELL THINGS

104

00:05:02,169 --> 00:05:08,729

FLY AND TRYING TO PUT THAT
INTO\h-- ALLOW OUR PAST

105

00:05:08,729 --> 00:05:11,760

EXPERIENCES TO BRING THAT TO
THESE SPACECRAFT RIGHT HERE.

106

00:05:11,760 --> 00:05:15,169

SO PART OF IT IS UNDERSTANDING
THE RISKS THAT YOU ARE TAKING

107

00:05:15,169 --> 00:05:18,240

WHEN YOU ARE ADVANCING ALONG
THOSE EDGES AND TAKING THOSE

108

00:05:18,240 --> 00:05:21,099

STEPS AND UNDERSTANDING THAT YOU
HAVE A BACKUP PLAN AND HOW YOU

109

00:05:21,099 --> 00:05:23,650

ARE GOING TO WORK TO ACCOMPLISH
THOSE GOALS.

110

00:05:23,650 --> 00:05:26,080

I THINK THAT'S JUST THE
BACKGROUND OF TEST PILOTING AND

111

00:05:26,080 --> 00:05:29,870

WE BRING THAT TO THE TABLE HERE.

112

00:05:29,870 --> 00:05:33,580

AFTER GRADUATING FROM TEST
PILOT SCHOOL, IT'S AN EXERCISE

113

00:05:33,580 --> 00:05:34,770

IN RISK MANAGEMENT.

114

00:05:34,770 --> 00:05:37,780

AS WE DEVELOP NEW VEHICLES, WE
HAVE TO MAKE DECISIONS ABOUT

115

00:05:37,780 --> 00:05:40,620

WHEN IT IS GOOD ENOUGH AND WHEN
WE NEED TO MAKE CHANGES FOR

116

00:05:40,620 --> 00:05:43,190

SAFETY OR FOR OTHER REASONS AS
WE GO FORWARD.

117

00:05:43,190 --> 00:05:46,240

SO THAT METHODOLOGY THAT'S
INSTILLED IN THE FOUR OF US FROM

118

00:05:46,240 --> 00:05:48,800

THAT TIME THAT WE SPENT AT THE
TEST PILOT SCHOOL I THINK IS

119

00:05:48,800 --> 00:05:50,879

GOING TO SERVE US WELL GOING
FORWARD.

120

00:05:50,879 --> 00:05:52,610

WE'RE TALKING ABOUT THESE TWO
VEHICLES.

121

00:05:52,610 --> 00:05:55,610

BEFORE WE CAME IN HERE TODAY WE
WERE TALKING A LITTLE BIT ABOUT

122

00:05:55,610 --> 00:05:59,810

WHY IT'S SUCH AN EXCITING TIME
WITH ALL OF THESE VEHICLES IN

123

00:05:59,810 --> 00:06:00,810

DEVELOPMENT.

124

00:06:00,810 --> 00:06:05,430

COULD YOU EXPLAIN WHY THAT'S SO
SIGNIFICANT AT THIS POINT?

125

00:06:05,430 --> 00:06:09,220

THIS IS THE FIRST TIME IN
BOTH BOB'S AND MY CAREER THAT WE

126

00:06:09,220 --> 00:06:10,300

HAVE HAD A NEW SPACES CRAFT.

127

00:06:10,300 --> 00:06:13,580

BOTH OF US HAVE FLOWN IN SPACE
BUT ON THE SHUTTLE AND THE

128

00:06:13,580 --> 00:06:15,740

RUSSIAN ONES.

129

00:06:15,740 --> 00:06:19,479

WE HAVE JUMPED INTO THE TRAINING
PROGRAM OF GETTING TO FLY THOSE

130

00:06:19,479 --> 00:06:20,479

SPACECRAFT.

131

00:06:20,479 --> 00:06:23,720

THIS IS WHERE WE ARE ACTUALLY
BEING PART OF THE PROCESS AS THE

132

00:06:23,720 --> 00:06:26,000

SPACECRAFT ARE BEING DEVELOPED.

133

00:06:26,000 --> 00:06:29,490

SO WE'RE INVOLVED IN BOTH OF THE
ONES THAT ARE BEING DEVELOPED

134

00:06:29,490 --> 00:06:33,199

FOR COMMERCIAL CREW AND THIS IS
ALSO ALLOWING NASA TO FOCUS

135

00:06:33,199 --> 00:06:36,099

THEIR ATTENTION ON DEVELOPING
ORION.

136

00:06:36,099 --> 00:06:40,000

EVEN THOUGH IT SEEMS QUIET AT
THE KENNEDY SPACE CENTER, IT'S

137

00:06:40,000 --> 00:06:42,199

RAMPING UP TO BE BUSY IN THE
NEAR FUTURE.

138

00:06:42,199 --> 00:06:46,670
WE WILL HAVE TO INTEGRATE THESE
INTO THE TRAFFIC MODEL GOING UP

139

00:06:46,670 --> 00:06:48,120
TO THE INTERNATIONAL SPACE
STATION.

140

00:06:48,120 --> 00:06:49,590
SO IT'S BUSY.

141

00:06:49,590 --> 00:06:52,099
WE HAVE THE SPACE STATION
PROGRAM GOING ON.

142

00:06:52,099 --> 00:06:54,690
WE HAVE THE COMMERCIAL PROGRAM
THAT'S RAMPING UP RATHER

143

00:06:54,690 --> 00:06:55,690
RAPIDLY.

144

00:06:55,690 --> 00:06:58,220
AND ALL THE DEVELOPMENTS FOR
ORION THAT'S COMING UP.

145

00:06:58,220 --> 00:07:00,699
PEOPLE ARE WORKING HARD ALL
THROUGHOUT THE COUNTRY TO GET

146

00:07:00,699 --> 00:07:03,919
THIS\h-- ALL OF THESE SPACE
SYSTEMS GOING.

147

00:07:03,919 --> 00:07:07,219
THAT REMINDS ME OF ONE OF THE
QUESTIONS WE GOT FROM TWITTER.

148

00:07:07,219 --> 00:07:09,910

WHERE DO YOU TRAIN?

149

00:07:09,910 --> 00:07:14,219

IT'S A GOOD QUESTION, WHERE
WILL WE TRAIN?

150

00:07:14,219 --> 00:07:17,889

WE WILL HAVE TRAINING ALL OVER
THE WORLD.

151

00:07:17,889 --> 00:07:22,340

BUT THE VEHICLE SPECIFIC
TRAINING IS A COMBINATION IN

152

00:07:22,340 --> 00:07:24,680

HOUSTON, FLORIDA AND SOUTHERN
CALIFORNIA.

153

00:07:24,680 --> 00:07:28,930

ALL THREE PLACES ARE GOING TO
COME TOGETHER TO BRING A TOTAL

154

00:07:28,930 --> 00:07:31,719

TRAINING FLOW FOR THE NEW
VEHICLES.

155

00:07:31,719 --> 00:07:36,629

AND THEN FROM TWITTER, WHAT
DO YOU THINK A NASA'S

156

00:07:36,629 --> 00:07:39,750

ASTRONAUT'S ROLE WILL BE IN THE
FUTURE OF HUMAN SPACE FLIGHT IN

157

00:07:39,750 --> 00:07:42,060

20, 50 YEARS FROM YOU NO?

158

00:07:42,060 --> 00:07:45,340
DON'T YOU WISH YOU WERE TEN,
20, 50 YEARS YOUNGER?

159
00:07:45,340 --> 00:07:47,530
IT'S GOING TO BE EXCITING.

160
00:07:47,530 --> 00:07:52,930
WE'RE IN THE LOWEST ORBIT.

161
00:07:52,930 --> 00:07:58,039
WE WILL GO WITH CUTTING EDGE
TECHNOLOGY IN THE NEAR FUTURE.

162
00:07:58,039 --> 00:08:02,469
I MENTIONED ORION WHICH IS A
BRIGHT FUTURE IN FRONT OF IT.

163
00:08:02,469 --> 00:08:06,780
IT'S GOING TO PROBABLY TAKE THE
NEXT GENERATION OF ASTRONAUTS.

164
00:08:06,780 --> 00:08:10,760
PROBABLY NOT BOB AND MYSELF, A
LITTLE FARTHER THAN LOW EARTH

165
00:08:10,760 --> 00:08:11,760
ORBIT.

166
00:08:11,760 --> 00:08:14,870
MAYBE TO THE MOON, MAYBE
ASTEROID, TO MARS.

167
00:08:14,870 --> 00:08:17,819
I THINK WHEN YOU GET A LITTLE
FARTHER AND FARTHER OUT, MAYBE

168
00:08:17,819 --> 00:08:21,620
WE WILL ACTUALLY BE SENDING
SPACECRAFT ON A ROUTINE BASIS TO

169

00:08:21,620 --> 00:08:22,620

MARS.

170

00:08:22,620 --> 00:08:24,660

THAT WAS WOULD BE PRETTY
SPECTACULAR.

171

00:08:24,660 --> 00:08:26,259

WE TALKED ABOUT THIS AS WELL.

172

00:08:26,259 --> 00:08:28,810

AHEAD OF COMING INTO THIS AND
PART OF THAT IS SPURRED BY THE

173

00:08:28,810 --> 00:08:30,380

QUESTIONS WE WERE GETTING.

174

00:08:30,380 --> 00:08:34,159

COMMERCIAL CREW IS OPENING UP
ACCESS TO DEEP SPACE IN A WAY.

175

00:08:34,159 --> 00:08:36,469

COULD YOU EXPLAIN HOW THAT IS
HAPPENING?

176

00:08:36,469 --> 00:08:40,419

WHAT COMMERCIAL CREW'S ROLE IS?

177

00:08:40,419 --> 00:08:44,440

I WOULD SAY THE WAY THAT WE
GET THAT OPENING UP IS TO KIND

178

00:08:44,440 --> 00:08:47,680

OF DIVIDE UP SOME OF THE
RESPONSIBILITIES AND DIVIDE UP

179

00:08:47,680 --> 00:08:50,010

SOME OF THE WORK THAT NEEDS TO

BE DONE TO CONTINUE OPERATING

180

00:08:50,010 --> 00:08:52,680

THE SPACE STATION AT THE SAME
TIME THAT WE GO FORWARD AND

181

00:08:52,680 --> 00:08:53,680

EXPLORE.

182

00:08:53,680 --> 00:09:04,670

SO WE HAVE ALLOWED THE PARTNERS,
SPACE X AND BOEING

183

00:09:04,670 --> 00:09:05,670

TO FOCUS.

184

00:09:05,670 --> 00:09:09,269

SO IT REALLY IS A GOOD DIVISION
OF LABOR AND RESPONSIBILITIES

185

00:09:09,269 --> 00:09:13,550

VERSUS HAVING NASA TRY TO
DEVELOP A COMMERCIAL VEHICLE OR

186

00:09:13,550 --> 00:09:16,730

DEVELOP A VEHICLE THAT WAS\h--
HAD THE SAME SPECIFICATIONS AND

187

00:09:16,730 --> 00:09:18,360

REQUIREMENTS AS THOSE COMMERCIAL
PARTNERS.

188

00:09:18,360 --> 00:09:19,360

THAT WOULD BE REDUNDANT.

189

00:09:19,360 --> 00:09:23,230

WE WANT TO FOCUS RESOURCES WHERE
WE CAN.

190

00:09:23,230 --> 00:09:28,130
WE DON'T HAVE INFINITE RESOURCES
TO HAVE EVERYBODY DO EVERYTHING.

191
00:09:28,130 --> 00:09:29,730
OKAY.

192
00:09:29,730 --> 00:09:34,139
THE SIGNIFICANCE IS THAT IT
RETURNS LAUNCH TO THE UNITED

193
00:09:34,139 --> 00:09:35,139
STATES.

194
00:09:35,139 --> 00:09:36,139
WE TALKED ABOUT THAT.

195
00:09:36,139 --> 00:09:40,709
TELL US WHAT WILL IT FEEL LIKE
WHEN YOU ARE LANDING HERE AND

196
00:09:40,709 --> 00:09:43,180
YOU KNOW THATh-- BOTH OF YOU I
WOULD LIKE TO ANSWER THIS.

197
00:09:43,180 --> 00:09:44,180
I THINK IT'S SIGNIFICANT.

198
00:09:44,180 --> 00:09:46,190
YOU ARE LANDING IN THE U.S.
AGAIN.

199
00:09:46,190 --> 00:09:48,990
YOUR FAMILY AND YOUR FRIENDS
WON'T NEED A PASSPORT TO GREET

200
00:09:48,990 --> 00:09:50,579
YOU WHEN YOU RETURN HOME.

201

00:09:50,579 --> 00:09:52,100
WHAT WILL THAT BE LIKE?

202
00:09:52,100 --> 00:09:53,930
THAT'S SPECTACULAR.

203
00:09:53,930 --> 00:09:54,930
EARTH IS HOME.

204
00:09:54,930 --> 00:09:56,230
SO ANYWHERE YOU LAND IS HOME.

205
00:09:56,230 --> 00:10:00,350
BUT BEING HERE AT HOME IN THE
UNITED STATES IS\h-- WILL BE

206
00:10:00,350 --> 00:10:02,690
AMAZING.

207
00:10:02,690 --> 00:10:06,720
BEFORE US WHEN WE WERE LANDING
IN KAZAKHSTAN, IT'S A TREK TO

208
00:10:06,720 --> 00:10:09,380
GET HOME TO HUG YOUR FAMILY AND
FRIENDS.

209
00:10:09,380 --> 00:10:12,720
THIS YOU WILL BE RIGHT AROUND
THE CORNER BEFORE TOO LONG.

210
00:10:12,720 --> 00:10:15,310
THAT SAME DAY, THAT SAME
AFTERNOON, YOU WILL BE ABLE TO

211
00:10:15,310 --> 00:10:21,029
SEE YOUR SPOUSE, YOUR KIDS, YOUR
DOG AND REALLY JUST SAY HI AND

212

00:10:21,029 --> 00:10:22,399
BE RIGHT BACK HERE AT HOME.

213
00:10:22,399 --> 00:10:23,399
IT'S HUGE.

214
00:10:23,399 --> 00:10:24,480
AND IT'S NOT ONLY THE LANDING.

215
00:10:24,480 --> 00:10:25,480
IT'S ALSO THE LAUNCH.

216
00:10:25,480 --> 00:10:30,820
WHEN YOU CAN ACTUALLY SHARE THE
LAUNCH WITH FRIENDS AND FAMILY

217
00:10:30,820 --> 00:10:32,779
AND PEOPLE WHO JUST HAVE TO GET
IN THEIR CAR AND DRIVE THEIR

218
00:10:32,779 --> 00:10:35,880
CAMPER DOWN TO FLORIDA, THAT'S
PRETTY SPECTACULAR.

219
00:10:35,880 --> 00:10:40,120
OF COURSE, PEOPLE SEE IT TODAY
ON SOCIAL MEDIA AND IN THE

220
00:10:40,120 --> 00:10:41,120
PRESS.

221
00:10:41,120 --> 00:10:43,470
BUT IT LOSES A LITTLE BIT OF
TOUCH WHEN IT'S ALL THE WAY

222
00:10:43,470 --> 00:10:44,470
AROUND THE WORLD.

223
00:10:44,470 --> 00:10:47,180

SO WHEN IT'S IN OUR OWN
BACKYARD, I THINK, OF COURSE, A

224

00:10:47,180 --> 00:10:49,530
LOT MORE PEOPLE WILL PAY
ATTENTION AND MORE PEOPLE WILL

225

00:10:49,530 --> 00:10:52,310
BE AWARE OF ALL OF THESE
PROGRAMS THAT WE'RE WORKING ON

226

00:10:52,310 --> 00:10:53,310
RIGHT NOW.

227

00:10:53,310 --> 00:10:56,459
I THINK THE KIDS IN THE COUNTRY
WILL UNDERSTAND THAT THEY ARE

228

00:10:56,459 --> 00:10:57,459
PART OF THIS.

229

00:10:57,459 --> 00:10:59,139
IT'S NOT SO DISTANT FOR THEM.

230

00:10:59,139 --> 00:11:01,449
THEY ARE THE NEXT GENERATION OF
THE EXPLORERS.

231

00:11:01,449 --> 00:11:05,329
I THINK SHE COVERED THE FULL
GAMUT WITH THE ANSWER TO THAT

232

00:11:05,329 --> 00:11:06,329
QUESTION.

233

00:11:06,329 --> 00:11:07,329
THERE'S A LOT OF PIECES OF IT.

234

00:11:07,329 --> 00:11:09,800

I THINK ONE OF THE THINGS I
TRIED TO DO OVER THE LAST FEW

235

00:11:09,800 --> 00:11:12,380
YEARS AS THE CHIEF OF THE
ASTRONAUT SO WAS TO MAKE SURE

236

00:11:12,380 --> 00:11:17,920
MANY OF THE ASTRONAUTS HAD A
CHANCE TO TRAVEL TO SEE A

237

00:11:17,920 --> 00:11:22,040
LAUNCH, TO PARTICIPATE IN THE
LANDING RECOVERY EFFORTS AND

238

00:11:22,040 --> 00:11:25,130
RECOGNIZE THE CHALLENGE AND
RESPECT WHAT'S GOING TO HAPPEN

239

00:11:25,130 --> 00:11:27,690
HERE IN THE FUTURE IN A FEW
SHORT YEARS WE WILL HAVE THE

240

00:11:27,690 --> 00:11:30,470
CAPABILITY TO DO THAT IN
FLORIDA.

241

00:11:30,470 --> 00:11:31,470
IT'S GOING TO BE AWESOME.

242

00:11:31,470 --> 00:11:34,610
THEY WILL REALLY HAVE SEEN,
THERE'S THE LONG WAY TO DO IT,

243

00:11:34,610 --> 00:11:37,730
WHICH IS TO GO TO KAZAKHSTAN AND
THEN THERE'S THE SHORT WAY TO

244

00:11:37,730 --> 00:11:42,280
HEAD DOWN TO FLORIDA AND SEE IT

HAPPEN FROM THERE.

245

00:11:42,280 --> 00:11:45,779

I DO THINK THAT IN TERMS OF
INSPIRATION, IN TERMS OF

246

00:11:45,779 --> 00:11:48,519

SPEAKING TO KIDS AND TRYING TO
MOTIVATE THEM TO BE INTERESTED

247

00:11:48,519 --> 00:11:50,740

IN THE SPACE PROGRAM AND THE
ENGINEERING AND SCIENCE THAT

248

00:11:50,740 --> 00:11:56,050

GOES WITH THAT, IT'S A TOUGHER
SELL TO EXPLAIN, THE NEXT LAUNCH

249

00:11:56,050 --> 00:11:59,399

WILL BE IN KAZAKHSTAN, THE NEXT
CREW WILL LAND HALFWAY AROUND

250

00:11:59,399 --> 00:12:00,709

THE WORLD.

251

00:12:00,709 --> 00:12:04,660

THEY'RE NOT QUITE AS INTERESTED
IN IT AS WHEN YOU CAN PACK UP IN

252

00:12:04,660 --> 00:12:08,920

A FAMILY SUV AND HEAD TO FLORIDA
AND SEE THE LAUNCH FOR YOURSELF.

253

00:12:08,920 --> 00:12:13,200

ANYBODY WHO HAS SEEN A SHUTTLE
LAUNCH OR THOSE THAT ARE AROUND

254

00:12:13,200 --> 00:12:21,709

AND ABLE TO SEE CREWS LAUNCH ON
DEEP SPACE MISSIONS FROM THE

255

00:12:21,709 --> 00:12:25,480

U.S. SPACE SOIL, IT'S A LIFE
CHANGING EXPERIENCE, I THINK.

256

00:12:25,480 --> 00:12:28,269

IT WOULD BE GREAT TO HAVE MORE
PEOPLE HAVE THAT OPPORTUNITY TO

257

00:12:28,269 --> 00:12:29,269

SEE.

258

00:12:29,269 --> 00:12:31,000

I THINK YOU ARE BOTH HITTING
ON SOMETHING SIGNIFICANT,

259

00:12:31,000 --> 00:12:34,610

BECAUSE A LOT OF THE QUESTIONS
THAT WE GOT RELATED TO THE

260

00:12:34,610 --> 00:12:35,610

INSPIRATION.

261

00:12:35,610 --> 00:12:37,880

I FEEL LIKE BECAUSE\h-- YOU WERE
COMING FROM COMMERCIAL CREW,

262

00:12:37,880 --> 00:12:40,350

WOULD YOU BE TALKING ABOUT THAT.

263

00:12:40,350 --> 00:12:44,300

ONE OF THE QUESTIONS WE GOT OVER
AND OVER AGAIN FROM SEVERAL

264

00:12:44,300 --> 00:12:50,769

TWITTER USERS IS WHAT SHOULD WE
DO OR WHAT SHOULD WE STUDY TO BE

265

00:12:50,769 --> 00:12:52,680

NASA ASTRONAUTS?

266

00:12:52,680 --> 00:12:54,630

I THINK WE'RE GOING TO BE
LOOKING FOR A LOT OF ASTRONAUTS

267

00:12:54,630 --> 00:12:57,060

IN THE NEAR FUTURE.

268

00:12:57,060 --> 00:12:59,360

MOST OF US HAVE A SCIENCE AND
MATH BACKGROUND.

269

00:12:59,360 --> 00:13:02,870

BUT THAT DOESN'T MEAN YOU HAVE
TO BE STRAIGHT SCIENCE.

270

00:13:02,870 --> 00:13:06,449

SOME PEOPLE THINK WE HAVE
DOCTORS, WE HAVE A VETERINARIAN,

271

00:13:06,449 --> 00:13:08,639

WE HAVE ENGINEERS, WE HAVE
PILOTS.

272

00:13:08,639 --> 00:13:11,270

WE HAVE DIVERS, WE HAVE
TEACHERS.

273

00:13:11,270 --> 00:13:14,259

BUT EVERYBODY HAS A SCIENCE OR
MATH BACKGROUND.

274

00:13:14,259 --> 00:13:18,150

I WOULD SAY PURSUE ANY TYPE OF
BACKGROUND OR ANY TYPE OF CAREER

275

00:13:18,150 --> 00:13:20,910

THAT HAS A SCIENCE AND MATH
BACKGROUND.

276

00:13:20,910 --> 00:13:23,529

BE THE BEST YOU CAN BE AND STAY
HEALTHY.

277

00:13:23,529 --> 00:13:26,910

YOUR BODY GOES THROUGH A
RIGOROUS UNDERTAKING TO GO INTO

278

00:13:26,910 --> 00:13:29,100

SPACE AND COME BACK.

279

00:13:29,100 --> 00:13:31,680

YOU HAVE TO BE HEALTHY.

280

00:13:31,680 --> 00:13:35,079

DON'T TAKE YOUR HEALTH FOR
GRANTED.

281

00:13:35,079 --> 00:13:37,610

AND YOU WERE THE FORMER CHIEF
OF THE ASTRONAUT OFFICE.

282

00:13:37,610 --> 00:13:40,370

WHAT SORT OF TRAITS WOULD YOU
LOOK FOR WHEN YOU WERE

283

00:13:40,370 --> 00:13:41,910

RECRUITING A NEW CLASS OF
ASTRONAUTS?

284

00:13:41,910 --> 00:13:44,980

THERE HAS BEEN A SHIFT OVER
THE DECADES.

285

00:13:44,980 --> 00:13:48,389

WE ARE GOING TO A NEW DIRECTION.

286

00:13:48,389 --> 00:13:51,130

THERE WAS A TIME WHEN EVERY
ASTRONAUT WAS A TEST PILOT, A

287

00:13:51,130 --> 00:13:53,861
MILITARY OFFICER WHO GRADUATED
FROM ONE OF THE TEST PILOT

288

00:13:53,861 --> 00:13:54,950
SCHOOLS.

289

00:13:54,950 --> 00:13:57,130
THAT'S GETTING FURTHER IN THE
PAST.

290

00:13:57,130 --> 00:13:59,959
COMMERCIAL CREW VEHICLES, WE
EXPECT THOSE TO BE OPERATED BY

291

00:13:59,959 --> 00:14:02,910
PEOPLE THAT DON'T NECESSARILY
HAVE A MILITARY TEST PILOTING

292

00:14:02,910 --> 00:14:03,910
BACKGROUND.

293

00:14:03,910 --> 00:14:05,589
THAT'S ONE OF THE
RESPONSIBILITIES THAT'S ON THE

294

00:14:05,589 --> 00:14:11,050
PLATE OF US AND THE TWO OTHER
FOLKS ASSIGNED TO MAKE SURE THAT

295

00:14:11,050 --> 00:14:14,120
WE PRODUCE A VEHICLE THAT A WIDE
RANGE OF PEOPLE WILL BE ABLE TO

296

00:14:14,120 --> 00:14:15,800
TAKE TO THE INTERNATIONAL SPACE
STATION.

297

00:14:15,800 --> 00:14:19,139

IN TERMS OF CHARACTERISTICS, I
REALLY WANT TO FOCUS ON

298

00:14:19,139 --> 00:14:22,220

PEOPLEh-- WHEN I WAS SELECTING
AND WE SAT ON THE RECENT

299

00:14:22,220 --> 00:14:26,230

SELECTION BOARD ON FOLKS THAT
DID WELL AT WHATEVER THEY TOOK

300

00:14:26,230 --> 00:14:28,960

TO BE THEIR LIFE'S DOING.

301

00:14:28,960 --> 00:14:32,770

WHETHER THEY WERE A SCIENTIST OR
ENGINEER OR PILOT, THE FOLKS

302

00:14:32,770 --> 00:14:35,649

THAT LOVED WHAT THEY DID AND DID
A GREAT JOB AT IT, IT SHOWED

303

00:14:35,649 --> 00:14:36,649

THROUGH.

304

00:14:36,649 --> 00:14:38,180

THOSE WERE THE TYPE OF PEOPLE
THAT WE WANTED TO HAVE IN THE

305

00:14:38,180 --> 00:14:39,180

OFFICE.

306

00:14:39,180 --> 00:14:42,959

IT WASN'T NECESSARILY I NEED
ANOTHER VETERINARIAN IN THE

307

00:14:42,959 --> 00:14:43,959

OFFICE.

308

00:14:43,959 --> 00:14:46,190

IT WAS, I NEED A VETERINARIAN
POTENTIALLY.

309

00:14:46,190 --> 00:14:48,500

BUT SOMEBODY WHO HAD THE RIGHT
PASSION, IF YOU WILL, FOR WHAT

310

00:14:48,500 --> 00:14:52,209

THEY DID AND TO DO A GOOD JOB
AND TO BE READY FOR ALL THE

311

00:14:52,209 --> 00:14:54,810

CONTINGENCIES THAT WE HAD TO
PREPARE FOR.

312

00:14:54,810 --> 00:14:55,920

THIS IS A BIG TEAM.

313

00:14:55,920 --> 00:14:59,230

I THINK ONE OF THE THINGS THAT
WE LOOK AT WHEN WE'RE LOOKINGh--

314

00:14:59,230 --> 00:15:02,210

LOOKING AT FOLKS APPLYING FOR
THE ASTRONAUT OFFICE IS HOW WELL

315

00:15:02,210 --> 00:15:03,579

PEOPLE PLAY TOGETHER.

316

00:15:03,579 --> 00:15:04,579

RIGHT?

317

00:15:04,579 --> 00:15:06,550

THE THINGS YOU LEARN IN
KINDERGARTEN.

318

00:15:06,550 --> 00:15:07,990
IT'S A TEAM EFFORT.

319
00:15:07,990 --> 00:15:13,850
BOB AND I AND ERIC AND DOUG ARE
PUT ON THIS MISSION RIGHT NOW.

320
00:15:13,850 --> 00:15:16,250
BUT THERE'S A LOT MORE TO
FOLLOW.

321
00:15:16,250 --> 00:15:18,769
AND ALONG WITH THAT IS A LOT OF
PEOPLE WHO SUPPORT WHAT WE'RE

322
00:15:18,769 --> 00:15:22,279
DOING AND REALLY GET THE
SPACECRAFT AND EVERYTHING ABOUT

323
00:15:22,279 --> 00:15:24,639
FLYING IN SPACE READY FOR US.

324
00:15:24,639 --> 00:15:28,160
YOU HAVE TO BE A TEAM PLAYER.

325
00:15:28,160 --> 00:15:30,459
GOING BACK TO COMMERCIAL CREW
AND BEING TEAM PLAYERS, ARE ALL

326
00:15:30,459 --> 00:15:34,050
OF YOUR PEERS IN THE ASTRONAUT
CORPS AWAITING AN EXPEDITION

327
00:15:34,050 --> 00:15:35,050
ASSIGNMENT?

328
00:15:35,050 --> 00:15:36,329
ARE THEY TALKING TO YOU ABOUT
IT?

329

00:15:36,329 --> 00:15:38,779

WHAT ARE YOU HEARING AMONG THE
CORPS ITSELF IN.

330

00:15:38,779 --> 00:15:40,879

I THINK EVERYBODY WHO DOESN'T
HAVE A FLIGHT ASSIGNMENT IS

331

00:15:40,879 --> 00:15:45,410

WAITING THE PHONE CALL THAT WILL
PRESENT THEM WITH ONE.

332

00:15:45,410 --> 00:15:47,620

I THINK THERE IS A LOT OF
EXCITEMENT GENERATED BY THE

333

00:15:47,620 --> 00:15:49,210

COMMERCIAL CREW PROGRAM.

334

00:15:49,210 --> 00:15:52,980

FOLKS ARE INTERESTED IN THE
ASPECT OF LAUNCHING AGAIN OUT OF

335

00:15:52,980 --> 00:15:56,800

THE FLORIDA SPACE COAST VERSUS
OUT OF KAZAKHSTAN.

336

00:15:56,800 --> 00:16:00,130

WE WILL HAVE ASTRONAUTS THAT DO
LAUNCH OUT OF KAZAKHSTAN.

337

00:16:00,130 --> 00:16:03,290

WE WILL NEED TO PRESERVE THAT
PARALLEL PATH.

338

00:16:03,290 --> 00:16:05,519

THE SPACE STATION IS A VALUABLE
RESOURCE.

339

00:16:05,519 --> 00:16:10,139
WE WANT TO MAKE SURE IT'S
APPROPRIATELY STAFFED.

340
00:16:10,139 --> 00:16:12,209
BUT SOME FOLKS WILL HAVE THE
OPPORTUNITY TO FLY OUT OF

341
00:16:12,209 --> 00:16:15,180
FLORIDA AND FOLKS ARE ALL
INTERESTED IN US GETTING TO THE

342
00:16:15,180 --> 00:16:17,810
POINT WHERE WE ARE LAUNCHING SO
THE NEXT ASSIGNMENTS WILL COME

343
00:16:17,810 --> 00:16:18,810
AFTER OURS.

344
00:16:18,810 --> 00:16:21,740
WE NEED TO MOVE ON SO THE
NEXT WILL BE ASSIGNED.

345
00:16:21,740 --> 00:16:24,430
WHILE WE ARE ON THE SUBJECT
OF ASSIGNMENT, WE HAVE A

346
00:16:24,430 --> 00:16:27,350
QUESTION FROM FACEBOOK ASKING,
HAVE YOU BEEN ASSIGNED TO A

347
00:16:27,350 --> 00:16:29,560
SPECIFIC MISSION YET?

348
00:16:29,560 --> 00:16:30,730
NOT QUITE YET.

349
00:16:30,730 --> 00:16:35,319
RIGHT NOW, WE'RE ALL LEARNING
ABOUT BOTH SPACECRAFT.

350

00:16:35,319 --> 00:16:39,480

IT'S A PRETTY COMPLICATED
PROBLEM ABOUT WHEN EXACTLY WHICH

351

00:16:39,480 --> 00:16:41,340

SPACECRAFT WILL FLY AND WHEN.

352

00:16:41,340 --> 00:16:43,551

THERE'S A LITTLE BIT OF A
TRAFFIC JAM UP AT THE SPACE

353

00:16:43,551 --> 00:16:46,209

STATION RIGHT NOW WITH OTHER
VEHICLES COMING UP, CARGO

354

00:16:46,209 --> 00:16:47,510

VEHICLES AS WELL.

355

00:16:47,510 --> 00:16:50,750

I THINK WE'RE STILL IN THE
DEVELOPMENT OF THESE TWO

356

00:16:50,750 --> 00:16:51,750

PROGRAMS.

357

00:16:51,750 --> 00:16:53,480

BOB AND I ARE LEARNING QUITE A
BIT ABOUT THEM FOR THE LAST

358

00:16:53,480 --> 00:16:54,990

COUPLE OF MONTHS.

359

00:16:54,990 --> 00:16:57,360

WE DON'T HAVE AN IDEA OF EXACTLY
WHO IS GOING TO FLY WHICH

360

00:16:57,360 --> 00:16:58,360

SPACECRAFT YET.

361

00:16:58,360 --> 00:17:01,270

WE'RE GETTING READIED TO FLY
BOTH AS BEST AS POSSIBLE.

362

00:17:01,270 --> 00:17:06,730

EVENTUALLY, THAT'S GOING TO WORK
ITSELF OUT IN THE MANIFEST.

363

00:17:06,730 --> 00:17:10,130

A LITTLE BIT OF A COMPLICATED
PROGRAM\h-- PROBLEM AT THIS

364

00:17:10,130 --> 00:17:11,130

MOMENT IN TIME.

365

00:17:11,130 --> 00:17:14,530

I WOULD JUST ADD THAT FROM\h--
AS WE DEVELOP THESE VEHICLES, WE

366

00:17:14,530 --> 00:17:16,690

WANT TO MAKE SURE THEY GET TO
THE SPACE STATION KIND OF THE

367

00:17:16,690 --> 00:17:17,959

SAME WAY.

368

00:17:17,959 --> 00:17:20,429

THAT THEY HAVE SOME OF THE SAME
REQUIREMENTS IN TERMS OF WHAT

369

00:17:20,429 --> 00:17:24,240

CREWS WILL NEED TO BE ABLE TO DO
SO WHEN THE TIME COMES TO SELECT

370

00:17:24,240 --> 00:17:26,970

CREWS AND TRAIN THEM, THAT WE
HAVE KIND OF GOT SIMILARITIES

371

00:17:26,970 --> 00:17:28,500
BETWEEN THE DIFFERENT VEHICLES.

372
00:17:28,500 --> 00:17:32,370
SO IF WE WERE TO SPLIT TOO EARLY
AND HAVE ONE PERSON JUST FOCUS

373
00:17:32,370 --> 00:17:35,780
ON ONE VEHICLE AND ANOTHER
PERSON ON ANOTHER VEHICLE, THEY

374
00:17:35,780 --> 00:17:40,260
MAY CHOOSE TO DO DOCKING IN A
WAY THAT DIDN'T ALLOW US TO KIND

375
00:17:40,260 --> 00:17:44,799
OF GET ANY SYNERGY FROM TRAINING
PERSPECTIVE OR FROM THE THINGS

376
00:17:44,799 --> 00:17:47,400
YOU HAVE TO KNOW OR FROM A NASA
OPERATIONS PERSPECTIVE, IT MAY

377
00:17:47,400 --> 00:17:50,720
BECOME INCONVENIENT FROM A
TRAFFIC PERSPECTIVE, IF EVERYONE

378
00:17:50,720 --> 00:17:52,950
CHOSE TO DO IT A DIFFERENT WAY.

379
00:17:52,950 --> 00:17:57,230
WE ARE TRYING TO DO
STANDARDIZATION SO THEY GET TO

380
00:17:57,230 --> 00:18:01,120
THE SPACE STATION IN A SMOOTH
WAY.

381
00:18:01,120 --> 00:18:04,940
WHEN THE TIME COMES THAT THAT'S

DONE, WE WILL BE MARRIED OFF TO

382

00:18:04,940 --> 00:18:08,000

ONE OF THE VEHICLES AND WE WILL
HEAD OFF TO THE SPACE STATION ON

383

00:18:08,000 --> 00:18:09,000

IT.

384

00:18:09,000 --> 00:18:12,320

ONE OF THE QUESTIONS THAT
CAME UP ON SOCIAL MEDIA WAS WHAT

385

00:18:12,320 --> 00:18:16,220

YOU LIKE WORKING ON WHEN YOU ARE
ON STATION.

386

00:18:16,220 --> 00:18:19,260

WE KNOW THAT THE COMMERCIAL CREW
PROGRAM IS GOING TO INCREASE THE

387

00:18:19,260 --> 00:18:22,179

AMOUNT OF TIME WE HAVE TO DO
RESEARCH ON THE SPACE STATION.

388

00:18:22,179 --> 00:18:25,140

COULD YOU TALK ABOUT YOUR
FAVORITE EXPERIMENTS?

389

00:18:25,140 --> 00:18:29,250

YOU KNOW ONE THAT I THOUGHT
THAT WAS GOING TO BE JUST LIKE

390

00:18:29,250 --> 00:18:32,809

INTERESTING WAS MADECCA FISH.

391

00:18:32,809 --> 00:18:37,370

WE SET UP AN AQUARIUM FOR FISH.

392

00:18:37,370 --> 00:18:38,880

OKAY.

393

00:18:38,880 --> 00:18:41,400

IS THIS GOING TO CHANGE THE
WORLD?

394

00:18:41,400 --> 00:18:42,400

MAYBE NOT.

395

00:18:42,400 --> 00:18:46,320

IT'S AMAZING HOW\h-- WHAT YOU
HAVE TO THINK ABOUT TO JUST PUT

396

00:18:46,320 --> 00:18:49,160

SOME TYPE OF PROJECT IN SPACE.

397

00:18:49,160 --> 00:18:52,860

HOW IS AN AQUARIUM GOING TO WORK
IN SPACE?

398

00:18:52,860 --> 00:18:55,870

HOW ARE THE FISH GOING TO ORIENT
THEMSELVES?

399

00:18:55,870 --> 00:18:57,909

WHAT KIND OF LIGHT DO THEY HAVE?

400

00:18:57,909 --> 00:19:01,669

I CAME TO FIND OUT A LITTLE
LATER ABOUT WHAT THEY WERE THERE

401

00:19:01,669 --> 00:19:03,170

FOR, WHICH IS PRETTY
SPECTACULAR.

402

00:19:03,170 --> 00:19:06,640

THEY ARE TRANSPARENT FISH.

403

00:19:06,640 --> 00:19:08,610
WE WERE LOOKING AT HOW THEIR
BONES ARE DEVELOPING.

404
00:19:08,610 --> 00:19:09,880
THEY WERE YOUNG FISH.

405
00:19:09,880 --> 00:19:11,630
THEY WERE GROWING AS THEY WERE
UP THERE.

406
00:19:11,630 --> 00:19:16,610
SO IT IS ACTUALLY PROBABLY
SCIENCE THAT'S PROBABLY GOING TO

407
00:19:16,610 --> 00:19:18,990
CHANGE THE WAY WE DO THINGS NOT
ONLY IN SPACE, BECAUSE, OF

408
00:19:18,990 --> 00:19:22,310
COURSE, BONE DENSITY IS AN
ISSUE, BUT REFLECTS BACK AND

409
00:19:22,310 --> 00:19:25,540
HELPS PEOPLE HERE ON EARTH WHO
HAVE OSTEOPOROSIS.

410
00:19:25,540 --> 00:19:29,480
THAT SEEMED NICE BECAUSE I LOVE
ANIMALS.

411
00:19:29,480 --> 00:19:34,260
REALLY IS VERY MULTI-FACETED AND
PRETTY SPECTACULAR.

412
00:19:34,260 --> 00:19:37,650
THERE'S A MYRIAD OF EXPERIMENTS
LIKE THAT THAT INCLUDE LOOKING

413
00:19:37,650 --> 00:19:40,390

AT WHAT'S HAPPENING TO THE HUMAN
BODY IN SPACE FOR AN EXTENDED

414

00:19:40,390 --> 00:19:41,390
PERIOD OF TIME.

415

00:19:41,390 --> 00:19:44,640
WE HAVE SCOTT KELLY UP THERE
RIGHT NOW.

416

00:19:44,640 --> 00:19:46,840
THAT'S HELPING THAT OUT.

417

00:19:46,840 --> 00:19:51,140
AS WELL AS NEW MATERIALS,
LOOKING AT\h-- BACK AT OUR

418

00:19:51,140 --> 00:19:52,140
PLANET.

419

00:19:52,140 --> 00:19:55,000
ALL THIS IS GOING TO HELP US ON
EARTH AND MAKE US SMARTER WHEN

420

00:19:55,000 --> 00:19:58,820
WE DEVELOP NEW SPACECRAFT AND
NEW SYSTEMS.

421

00:19:58,820 --> 00:20:01,470
SO THE SPACE STATION IS FILLED
WITH A BUNCH OF THEM.

422

00:20:01,470 --> 00:20:04,150
BUT I'M AN ANIMAL LOVER.

423

00:20:04,150 --> 00:20:08,779
I WOULDN'T SAY I'M NOT AN
ANIMAL LOVER.

424

00:20:08,779 --> 00:20:12,240
BUT I WOULD SAY THE BIOLOGY
EXPERIMENTS FOR THE BIOLOGY THAT

425
00:20:12,240 --> 00:20:15,490
THEY ARE ARE THE ONES THAT I
FOUND THE MOST INTERESTING TO

426
00:20:15,490 --> 00:20:16,490
PERFORM.

427
00:20:16,490 --> 00:20:18,650
I REALLY THINK THAT THERE'S A
UNIQUE ENVIRONMENT THAT'S UP

428
00:20:18,650 --> 00:20:21,580
THERE AND HOW WE LIVE AND
OPERATE IN THAT UNIQUE

429
00:20:21,580 --> 00:20:24,810
ENVIRONMENT, HOW GENES EXPRESS
THEMSELVES, THE CHALLENGES THAT

430
00:20:24,810 --> 00:20:28,220
THE BODY FACES ADAPTING, ALL OF
THOSE PIECES ARE THINGS THAT

431
00:20:28,220 --> 00:20:30,920
WILL TEACH US ABOUT WHAT HAPPEN
DOWN ON EARTH.

432
00:20:30,920 --> 00:20:33,820
WE WILL HAVE TO UNDERSTAND THE
SYSTEM REALLY WELL IF WE CAN

433
00:20:33,820 --> 00:20:38,090
UNDERSTAND IT IN SPACE, AND THAT
WILL INFORM US AS WE MAKE

434
00:20:38,090 --> 00:20:42,690

DECISIONS ABOUT HOW WE PROTECT
OURSELVES OR OPERATE ON THE

435

00:20:42,690 --> 00:20:43,690
GROUND.

436

00:20:43,690 --> 00:20:46,710
SO I REALLY DO THINK ALL OF
THAT\h-- THE BIOLOGY\h-- LOVING

437

00:20:46,710 --> 00:20:50,930
ANIMALS IS GREAT, A FISH TANK
AND OTHER LIFE FORMS ABOARD WITH

438

00:20:50,930 --> 00:20:53,650
YOU ON SPACE STATION, BUT THE
SCIENCE ASSOCIATED WITH BIOLOGY

439

00:20:53,650 --> 00:20:55,570
IS REMARKABLE.

440

00:20:55,570 --> 00:20:59,870
YOU RAN A MARATHON WHILE YOU
WERE ON THE SPACE STATION.

441

00:20:59,870 --> 00:21:02,320
I'M GOING TO DIRECT THIS
QUESTION TOWARD YOU.

442

00:21:02,320 --> 00:21:06,700
HOW DOES ZERO GRAVITY AFFECT
YOUR MUSCLE TONE WHEN YOU RETURN

443

00:21:06,700 --> 00:21:07,750
TO EARTH?

444

00:21:07,750 --> 00:21:08,750
WOW.

445

00:21:08,750 --> 00:21:09,750

INTERESTING.

446

00:21:09,750 --> 00:21:11,880

IF YOU DID NOTHING, YOU PROBABLY
WOULD COME BACK A LITTLE BIT

447

00:21:11,880 --> 00:21:12,880

WEAK.

448

00:21:12,880 --> 00:21:15,630

BUT LUCKILY ENOUGH WE HAVE SOME
EQUIPMENT UP THERE THAT KEEPS US

449

00:21:15,630 --> 00:21:19,470

SORT OF IN THE NORMAL FORM WHEN
WE RETURN BACK TO EARTH.

450

00:21:19,470 --> 00:21:20,470

THAT'S PRETTY IMPORTANT.

451

00:21:20,470 --> 00:21:23,960

YOU DON'T WANT TO HAVE LOST TOO
MUCH BONE DENSITY OR MUSCLE MASS

452

00:21:23,960 --> 00:21:24,960

UP IN SPACE.

453

00:21:24,960 --> 00:21:28,260

WE'RE ON A RIGOROUS PROGRAM UP
THERE.

454

00:21:28,260 --> 00:21:32,159

IT'S ABOUT TWO HOURS WORTH OF
EXERCISE, A LITTLE BIT CARDIO, A

455

00:21:32,159 --> 00:21:36,039

LITTLE BIT WEIGHT LIFTING WITH
THE ADVANCED RESISTANCE EXERCISE

456
00:21:36,039 --> 00:21:37,350
DEVICE.

457
00:21:37,350 --> 00:21:42,230
MOST IS FOCUSED TOWARD
MAINTAINING MUSCLE MASS AND BONE

458
00:21:42,230 --> 00:21:43,309
DENSITY.

459
00:21:43,309 --> 00:21:46,130
ALONG WITH THE NUTRITION PROGRAM
THAT WE HAVE UP THERE, THE FOOD

460
00:21:46,130 --> 00:21:49,150
THAT WE'RE EATING, PEOPLE ARE
COMING BACK IN REALLY GOOD SHAPE

461
00:21:49,150 --> 00:21:53,730
AFTER BEING UP IN SPACE FOR SIX
MONTHS OR SO.

462
00:21:53,730 --> 00:21:57,220
THAT'S BASED ON OR BECAUSE OF
THE RIGOROUS EXERCISE PROTOCOLS

463
00:21:57,220 --> 00:21:58,549
THAT WE HAVE.

464
00:21:58,549 --> 00:22:01,180
LIKE I MENTIONED, IF YOU DIDN'T
DO ANYTHING, YOU WOULD HAVE SOME

465
00:22:01,180 --> 00:22:02,180
PROBLEMS.

466
00:22:02,180 --> 00:22:05,000
OUR BODY IS FORMED AND MADE HERE
ON EARTH.

467

00:22:05,000 --> 00:22:07,779

THAT'S HOW\h-- THAT'S WHY WE LOOK
THE WAY WE LOOK.

468

00:22:07,779 --> 00:22:10,610

BEING IN SPACE, IT'S GOING TO
START TO CHANGE YOU UNLESS YOU

469

00:22:10,610 --> 00:22:14,370

REMEMBER BACK WHY YOU NEED TO
WALK AROUND A LITTLE BIT.

470

00:22:14,370 --> 00:22:18,350

THE EXERCISE EQUIPMENT IS REALLY
GOOD.

471

00:22:18,350 --> 00:22:22,320

SO WE'RE GOING TO END WITH
JUST A FEW RAPID FIRE QUESTIONS.

472

00:22:22,320 --> 00:22:23,760

I'M GOING TO THROW THE QUESTIONS
OUT.

473

00:22:23,760 --> 00:22:26,280

JUST ANSWER THEM AS QUICKLY AS
YOU CAN.

474

00:22:26,280 --> 00:22:29,440

WHAT'S THE FIRST FOOD YOU WANT
TO EAT WHEN YOU RETURN TO EARTH?

475

00:22:29,440 --> 00:22:30,850

PIZZA.

476

00:22:30,850 --> 00:22:32,260

STEAK.

477

00:22:32,260 --> 00:22:35,419
WHAT'S YOUR FAVORITE FOOD ON
STATION?

478
00:22:35,419 --> 00:22:36,929
COTTAGE CHEESE FROM RUSSIA.

479
00:22:36,929 --> 00:22:39,070
I LIKE THE SPAGHETTI.

480
00:22:39,070 --> 00:22:43,330
IF YOU COULD SOLVE ONE SPACE
MYSTERY, WHAT WOULD IT BE?

481
00:22:43,330 --> 00:22:45,280
ONE SPACE MYSTERY?

482
00:22:45,280 --> 00:22:47,610
FOR ME, THE MYSTERY THAT I WOULD
LIKE TO SOLVE IS, WHERE IS THE

483
00:22:47,610 --> 00:22:50,429
NEAREST LIFE IN OUTER SPACE?

484
00:22:50,429 --> 00:22:51,650
THERE'S A QUESTION OF IS THERE
LIFE.

485
00:22:51,650 --> 00:22:55,330
I THINK THERE'S SO MUCH OUT
THERE THAT THE ANSWER HAS TO BE

486
00:22:55,330 --> 00:22:56,330
YES.

487
00:22:56,330 --> 00:22:57,799
BUT WHERE IS THE NEAREST IS THE
QUESTION I WOULD LIKE\h--

488

00:22:57,799 --> 00:22:58,960
YOU ARE LOOKING FOR ALIENS?

489
00:22:58,960 --> 00:23:01,909
LOOK BEING FOR ALIENS.

490
00:23:01,909 --> 00:23:06,330
OCTOBER 21, 2015 IS BACK TO
THE FUTURE DAY, THE DAY MARTY

491
00:23:06,330 --> 00:23:07,740
AND DOCK ARRIVED IN THE FUTURE.

492
00:23:07,740 --> 00:23:12,529
THE FILM PREDICTED IT WOULD LOOK
DIFFERENT THAN IT DOES TODAY.

493
00:23:12,529 --> 00:23:16,029
WHAT WERE YOU\h-- WHEN YOU WERE A
KID, WHAT TECHNOLOGY DID YOU

494
00:23:16,029 --> 00:23:22,640
THINK WE WOULD HAVE TODAY THAT
WE DON'T HAVE YET?

495
00:23:22,640 --> 00:23:25,740
FROM MY PERSPECTIVE, I
THOUGHT WE WOULD HAVE A PERSONAL

496
00:23:25,740 --> 00:23:27,730
HOVER CRAFT CAPABILITY.

497
00:23:27,730 --> 00:23:32,190
I THINK MARTY HAD A SKATEBOARD
THAT HE ADOPTED AND WAS ABLE TO

498
00:23:32,190 --> 00:23:33,190
FLY AROUND ON.

499

00:23:33,190 --> 00:23:35,779
WE DON'T HAVE A BIG CHANGE FROM
THAT PERSPECTIVE.

500
00:23:35,779 --> 00:23:36,909
WE CAN DRIVE CARS.

501
00:23:36,909 --> 00:23:40,990
WE DON'T HAVE PERSONAL HOVER
CRAFT OR FLYING VEHICLES.

502
00:23:40,990 --> 00:23:42,100
I WAS HOPING THAT WE WOULD HAVE
THAT.

503
00:23:42,100 --> 00:23:43,490
IT WOULD BE COOL.

504
00:23:43,490 --> 00:23:49,440
I'M HAPPY WITH FACETIME OR
ANY DEVICE YOU CAN SEE SOMEBODY

505
00:23:49,440 --> 00:23:50,440
YOU ARE TALKING TO.

506
00:23:50,440 --> 00:23:54,419
I NEVER THOUGHT THE JETSON PHONE
WOULD COME TO LIFE AND IT HAS.

507
00:23:54,419 --> 00:23:58,320
IT'S BETTER THAN THE VIDEO
CONFERENCES CAPABILITY, BEING

508
00:23:58,320 --> 00:24:01,970
ABLE TO FACETIME OR SKYPE WITH
YOUR FAMILY IS SOMETHING THE

509
00:24:01,970 --> 00:24:02,970
CREW USES.

510

00:24:02,970 --> 00:24:05,830

I'M SURE FUTURE MISSIONS WILL
USE THAT.

511

00:24:05,830 --> 00:24:08,590

IT ALWAYS EVEN IN SCIENCE
FICTION MOVIES LOOKS CLUNKY

512

00:24:08,590 --> 00:24:11,010

COMPARED TO WHAT WE HAVE ON THE
GROUND.

513

00:24:11,010 --> 00:24:13,770

PRETTY COOL THAT WE HAVE
ACHIEVED SO MUCH ON THAT FRONT.

514

00:24:13,770 --> 00:24:19,140

I GOT TO SEE MY DOG FROM
SPACE WITH SKYPE TYPE OF THING

515

00:24:19,140 --> 00:24:20,140

WE HAVE.

516

00:24:20,140 --> 00:24:21,250

THAT'S NEAT.

517

00:24:21,250 --> 00:24:23,850

IT IS.

518

00:24:23,850 --> 00:24:26,370

SOMEBODY MENTIONED SCI-FI
MOVIES.

519

00:24:26,370 --> 00:24:31,120

"STAR TREK" OR WARS?

520

00:24:31,120 --> 00:24:36,720

I'M A TREK GAL.

521

00:24:36,720 --> 00:24:39,200

YOUR PREFERRED SLEEP, SPACE
OR EARTH?

522

00:24:39,200 --> 00:24:42,330

MY PREFERRED SLEEP IS AFTER A
GOOD DAY'S WORK.

523

00:24:42,330 --> 00:24:44,570

I HAVE THAT ON THE GROUND AND IN
SPACE.

524

00:24:44,570 --> 00:24:47,630

I HAVE ENOUGH WORK TO DO TO GET
A GOOD NIGHT'S SLEEP.

525

00:24:47,630 --> 00:24:50,370

I VOTE FOR SPACE.

526

00:24:50,370 --> 00:24:53,090

NOTHING HURT.

527

00:24:53,090 --> 00:24:58,720

IT DOES TAKE ABOUT I WOULD SAY
PROBABLY A MONTH FOR ME TO

528

00:24:58,720 --> 00:25:01,280

REALLY GET USED TO FLOATING.

529

00:25:01,280 --> 00:25:04,049

BUT SLEEPING IN SPACE IS PRETTY
AWESOME.

530

00:25:04,049 --> 00:25:05,250

WAKE UP REFRESHED.

531

00:25:05,250 --> 00:25:08,460

YOU GAVE SOMEBODY A GREAT
BUSINESS IDEA.

532

00:25:08,460 --> 00:25:11,390

FAVORITE PLANET OTHER THAN
EARTH?

533

00:25:11,390 --> 00:25:12,400

JUPITER.

534

00:25:12,400 --> 00:25:14,910

PROBABLY MARS.

535

00:25:14,910 --> 00:25:17,440

IT'S GOING TO BE SPECTACULAR
WHEN WE GET THERE.

536

00:25:17,440 --> 00:25:20,370

WHAT'S ONE ITEM YOU ALWAYS
BRING WITH YOU ON A MISSION?

537

00:25:20,370 --> 00:25:23,809

I HAVE ALWAYS BROUGHT A RING
FROM MY WIFE.

538

00:25:23,809 --> 00:25:28,370

I THINK I WILL BRING HER RING
AND A PICTURE OF OUR SON.

539

00:25:28,370 --> 00:25:30,049

ALL RIGHT.

540

00:25:30,049 --> 00:25:33,070

THANK YOU BOTH SO MUCH FOR
TAKING TIME TO TALK WITH US

541

00:25:33,070 --> 00:25:34,070

TODAY.

542

00:25:34,070 --> 00:25:37,020

THANKS, EVERYONE, WHO SENT IN

THE GREAT QUESTIONS WITH THE

543

00:25:37,020 --> 00:25:38,020

#ATNASA.

544

00:25:38,020 --> 00:25:39,850

THIS HAS BEEN A LIVE NASA SOCIAL
CHAT.

545

00:25:39,850 --> 00:25:40,850

THANK YOU FOR JOINING US.

546

00:25:40,850 --> 00:25:41,850

SOYUZ.

547

00:25:41,850 --> 00:25:42,850

ORION.

548

00:25:42,850 --> 00:25:43,850

EYE RYNE.