



Smithsonian



1

00:00:00,429 --> 00:00:01,429

>> WELCOME STUDENTS TO CELEBRATING HISTORY  
MONTH GETTING EXCITED ABOUT S.T.E.M.

2

00:00:01,429 --> 00:00:05,259

PLEASE WELCOME TO THE STAGE JOHN AND ADRIAN  
LAWRENCE, DIRECTOR OF THE NATIONAL AIR AND

3

00:00:05,259 --> 00:00:10,130

SPACE MUSEUM, GENERAL JACK DALY.

4

00:00:10,130 --> 00:00:16,289

[APPLAUSE] SECRETARY OF EDUCATION, BETSY DEVOS.

5

00:00:16,289 --> 00:00:20,350

[APPLAUSE] IVANKA TRUMP.

6

00:00:20,350 --> 00:00:25,750

MUSEUM EXPLAINER, RAY STEWART.

7

00:00:25,750 --> 00:00:31,150

NASA ASTRONAUT, KAY HEIR.

8

00:00:31,150 --> 00:00:38,480

AND NASA ENGINEERS AND MODERN FIGURES, APRIL  
ERICKSON, SANDRA COFFMAN AND ANDREA WAZAGI.

9

00:00:38,480 --> 00:00:42,070

[APPLAUSE]

>> I THINK WE CAN ALL BE SEATED.

10

00:00:42,070 --> 00:00:51,770

WELL, GOOD MORNING.

11

00:00:51,770 --> 00:00:57,469

I'M JACK DALY, THE DIRECTOR OF THE SMITHSONIAN'S  
NATIONAL AIR AND SPACE MUSEUM AND IT'S MY

12

00:00:57,469 --> 00:01:02,989

PLEASURE TO WELCOME YOU HERE TODAY TO CELEBRATE  
WOMEN'S MYSTERY MONTH AND TO HEAR FROM SOME

13

00:01:02,989 --> 00:01:08,680

OF OUR SPECIAL GUESTS ON HOW YOU CAN MAKE  
YOURSELF FAMOUS.

14

00:01:08,680 --> 00:01:13,470

EVERY MARCH, ACROSS THE COUNTRY, WE COMMEMORATE  
THE ACCOMPLISHMENTS OF SIGNIFICANT WOMEN OF

15

00:01:13,470 --> 00:01:14,760

EVERY ERA.

16

00:01:14,760 --> 00:01:20,600

SOME, LIKE AMELIA EARHART, BESTY COLEMAN AND  
JACKIE COCHRAN FOUND THEIR WAY INTO THE HISTORY

17

00:01:20,600 --> 00:01:24,900

BOOKS BY BEING THE FASTEST.

18

00:01:24,900 --> 00:01:29,080

OTHERS, BY OVERCOMING EXTRORDINARY OBSTACLES  
TO ACCOMPLISH TASKS.

19

00:01:29,080 --> 00:01:37,060

LAST YEAR, HOLLYWOOD DID A STORY ON THREE  
SUCH WOMEN IN THE FILM "HIDDEN FIGURES."

20

00:01:37,060 --> 00:01:39,110

WHICH YOU WILL SEE LATER TODAY.

21

00:01:39,110 --> 00:01:44,720

IT REMINDS US THAT IT WAS A CONTRIBUTION AND  
HARD WORK OF THOUSANDS OF AMERICANS OF ALL

22

00:01:44,720 --> 00:01:50,270

AGES, GENDERS AND RACES THAT RESULTED IN THE  
TRIUMPH OF PUTTING THE FIRST HUMAN ON THE

23

00:01:50,270 --> 00:01:51,270

MOON.

24

00:01:51,270 --> 00:01:57,649

I ALSO WANT TO DISCUSS A GROUP OF PEOPLE WHO  
HAVEN'T MADE IT INTO THE HISTORY BOOKS YET.

25

00:01:57,649 --> 00:02:02,020

I CHALLENGE YOU TO THINK ABOUT WHAT GREAT  
MILESTONES YOU WOULD LIKE TO REACH IN THE

26

00:02:02,020 --> 00:02:05,399

NEXT 60 YEARS AND HOW YOU CAN MAKE THEM HAPPEN.

27

00:02:05,399 --> 00:02:11,930

AND AS THE THREE WOMEN IN THE FILM DISCOVERED,  
IT MAY TAKE MORE THAN BRAINS . IT MAY TAKE

28

00:02:11,930 --> 00:02:17,450

COURAGE AND DETERMINATION TO OVERCOME OTHERS'  
PRECONCEPTIONS OF WHAT YOU CAN ACCOMPLISH.

29

00:02:17,450 --> 00:02:22,849

NO MATTER WHAT, MAKING HISTORY TAKES HARD  
WORK AND THAT STARTS IN THE CLASSROOM.

30

00:02:22,849 --> 00:02:26,480

IN "HIDDEN FIGURES" THE TERM COMPUTER DIDN'T  
MEAN THE PHONE IN THE POCKET.

31

00:02:26,480 --> 00:02:34,349

IT MEANT THE PERSON WHO DID THE TASK OF COMPUTING  
ORBITAL TRAJECTORIES WITH LIVES ON THE LINE.

32

00:02:34,349 --> 00:02:37,519

SCIENCE, TECHNOLOGY, ENGINEERING AND MATH,  
THE S.T.E.M.

33

00:02:37,519 --> 00:02:42,420

SUBJECTS, ARE VITAL EVEN IN THE AGE OF SMART PHONES.

34

00:02:42,420 --> 00:02:46,870

OUR SPECIAL GUESTS TODAY CAN TELL YOU FIRST HAND JUST HOW FAR YOU CAN GO IF YOU START

35

00:02:46,870 --> 00:02:49,549

EARLY AND STUDY HARD.

36

00:02:49,549 --> 00:02:57,099

I WOULD LIKE TO THANK IVANKA TRUMP AND SECRETARY OF EDUCATION BETSY DEVOS FOR BEING HERE TODAY.

37

00:02:57,099 --> 00:03:02,090

OUR MUSEUM AND THE DEPARTMENT OF EDUCATION CAN CHANGE THE WAY SCHOOLS AND MUSEUMS WORK

38

00:03:02,090 --> 00:03:03,290

TOGETHER.

39

00:03:03,290 --> 00:03:08,930

AND ENSURE THAT A CENTURY FROM NOW, THESE HALLS WILL BE FILLED WITH NEW STORIES OF ACHIEVEMENTS

40

00:03:08,930 --> 00:03:11,329

THAT WE CAN'T YET FATHOM.

41

00:03:11,329 --> 00:03:15,159

WE LOOK FORWARD TO HEARING FROM SECRETARY DEVOS IN A FEW MOMENTS.

42

00:03:15,159 --> 00:03:20,400

THE NATIONAL AIR AND SPACE MUSEUM WORKS TO CREATE INNOVATIVE MODELS FOR INFORMAL EDUCATION

43

00:03:20,400 --> 00:03:24,609

AND TO BUILD BRIDGES TO THE NATION'S FORMAL EDUCATION SYSTEM.

44

00:03:24,609 --> 00:03:30,099

ONE OF OUR MOST SUCCESSFUL INITIATIVES HAS  
BEEN A PARTNERSHIP WITH GENERAL ELECTRIC AVIATION

45

00:03:30,099 --> 00:03:35,469

THAT BRINGS SPECIAL MUSEUM PROGRAMS DIRECTLY  
INTO THE CLASSROOMS OF THE CINCINNATI PUBLIC

46

00:03:35,469 --> 00:03:36,819

SCHOOL SYSTEM.

47

00:03:36,819 --> 00:03:42,810

THESE LESSONS ARE LED BY EXTRAORDINARY YOUNG  
PEOPLE CALLED "EXPLAINERS" AND ONE OF THEM

48

00:03:42,810 --> 00:03:44,839

IS HERE TO TALK TO YOU RIGHT NOW.

49

00:03:44,839 --> 00:03:49,739

IT'S MY PLEASURE TO INTRODUCE, RAY STEWART.

50

00:03:49,739 --> 00:03:51,040

RAY?

51

00:03:51,040 --> 00:03:57,519

[APPLAUSE]

>> THANK YOU, GENERAL DALY.

52

00:03:57,519 --> 00:04:01,419

GOOD MORNING, EVERYONE.

53

00:04:01,419 --> 00:04:06,729

AND ONCE AGAIN WELCOME TO THE SMITHSONIAN  
NATIONAL AIR AND SPACE MUSEUM.

54

00:04:06,729 --> 00:04:11,099

THE ARTIFACTS HERE AT THIS MUSEUM HAVE REMARKABLE  
STORIES TO TELL.

55

00:04:11,099 --> 00:04:14,199

AND THE BIGGEST AREN'T NECESSARILY THE BEST.

56

00:04:14,199 --> 00:04:20,519

SOME THINGS THAT SEEM SMALL AND UNREMARKABLE  
MAY HAVE, IN FACT, CHANGED HUMAN HISTORY.

57

00:04:20,519 --> 00:04:23,880

IT'S IMPOSSIBLE TO KNOW ALL OF THE STORIES  
BEHIND THESE ARTIFACTS.

58

00:04:23,880 --> 00:04:28,860

JUST AS IT IS IMPOSSIBLE TO KNOW ALL THE STORIES  
BEHIND EVERYONE WHO HAD A HAND IN MAKING THEM.

59

00:04:28,860 --> 00:04:33,110

BUT, THAT'S THE BEAUTIFUL THING ABOUT SCIENCE  
AND INNOVATION.

60

00:04:33,110 --> 00:04:39,620

EVERY ACHIEVEMENT, BIG OR SMALL, IS NOT THE  
RESULT OF JUST ONE PERSON'S WORK, BUT IS BASED

61

00:04:39,620 --> 00:04:44,659

OFF OF THE WORK OF GENERATIONS OF PEOPLE OVER  
CENTURIES AND MILLENNIA.

62

00:04:44,659 --> 00:04:49,759

IT IS IMPOSSIBLE TO KNOW THE NAMES OF ALL  
THE PEOPLE WHO WORK TO ADVANCE OUR KNOWLEDGE

63

00:04:49,759 --> 00:04:51,070

OF THE UNIVERSE.

64

00:04:51,070 --> 00:04:56,669

BUT, SOME PEOPLE DO NOT HAVE TO REMAIN HIDDEN  
FROM VIEW.

65

00:04:56,669 --> 00:05:03,240

THIS MORNING, WE WILL SEE "HIDDEN FIGURES"  
A POWERFUL MOVIE ABOUT A POWERFUL STORY.

66

00:05:03,240 --> 00:05:09,319

CATHERINE JOHNSON AND HER FELLOW HUMAN COMPUTERS  
OPENED SO MANY DOORS.

67

00:05:09,319 --> 00:05:15,310

THEY CHARTED THE COURSE TO TAKE US TO SPACE  
AND ALL OF THE PROGRESS WE HAVE SINCE THEN,

68

00:05:15,310 --> 00:05:16,570

STANDS ON THEIR SHOULDERS.

69

00:05:16,570 --> 00:05:22,370

AS A YOUNG BLACK WOMAN IN SCIENCE, I, TOO,  
STAND ON THEIR SHOULDERS.

70

00:05:22,370 --> 00:05:26,030

THEY HAVE OPENED THE DOOR FOR ME TO PARTICIPATE  
IN THIS GREAT ADVENTURE.

71

00:05:26,030 --> 00:05:33,539

THESE WOMEN WORKED SO HARD NOT BECAUSE OF  
HOW EASY IT WAS, BUT IN SPITE OF THE CHALLENGES

72

00:05:33,539 --> 00:05:36,490

AND BECAUSE IT WAS WORTH IT.

73

00:05:36,490 --> 00:05:38,900

I AM CURRENTLY IN THESE WASHINGTON D.C.

74

00:05:38,900 --> 00:05:46,100

TO STUDY PHYSICS AND THANKFULLY HAVE THE OPPORTUNITY  
TO BE AN EXPLAINER HERE AT THE MUSEUM.

75

00:05:46,100 --> 00:05:50,830

THE EXPLAINERS TELL THE STORIES BEHIND THESE  
ARTIFACTS TO STUDENTS JUST LIKE YOU.

76

00:05:50,830 --> 00:05:57,939

EVERY DAY, WE WORK TO PLANT SEEDS OF CURIOSITY,  
TO FURTHER FUTURE INNOVATION AND DISCOVERY.

77

00:05:57,939 --> 00:06:01,150

BUT, THE REST IS UP TO YOU.

78

00:06:01,150 --> 00:06:03,050

THERE WILL BE VOICES THAT SAY THAT YOU CAN'T.

79

00:06:03,050 --> 00:06:05,740

AND SOME OF THOSE VOICES WILL COME FROM YOU.

80

00:06:05,740 --> 00:06:08,150

BACK IN THE BACK OF YOUR MIND.

81

00:06:08,150 --> 00:06:11,060

SAYING ■■ I'M NOT SMART ENOUGH, OR, I  
DON'T BELONG.

82

00:06:11,060 --> 00:06:13,169

BUT, DON'T LISTEN.

83

00:06:13,169 --> 00:06:15,169

YOU DO BELONG.

84

00:06:15,169 --> 00:06:18,250

YOU WILL HAVE TO WORK HARD AND YOU WILL HAVE  
TO FIGHT FOR IT.

85

00:06:18,250 --> 00:06:22,229

BUT, IT IS WORTH FIGHTING FOR.

86

00:06:22,229 --> 00:06:26,560

AND DO NOT BE DISCOURAGED, BECAUSE YOU, TOO,  
ARE STANDING ON THE SHOULDERS OF MANY WHO

87

00:06:26,560 --> 00:06:32,830

CAME BEFORE YOU WHO HAVE WORKED HARD AND HAVE  
FOUGHT TO DO THEIR PART.

88

00:06:32,830 --> 00:06:34,560

WE KNOW THAT THIS IS WORTH FIGHTING FOR.

89

00:06:34,560 --> 00:06:42,610

IT IS WORTH FIGHTING FOR AND IT'S WORTH FIGHTING  
FOR NOT BECAUSE OF, JUST FOR YOURSELF OR FOR

90

00:06:42,610 --> 00:06:47,919

CURRENT HUMANITY, FOR OUR CURRENT DEVELOPMENT,  
BUT, IT'S WORTH FIGHTING FOR FOR THE FUTURE

91

00:06:47,919 --> 00:06:50,509

GENERATIONS, AS WELL.

92

00:06:50,509 --> 00:06:53,580

WE BELIEVE IN YOU AND WE KNOW THAT YOU CAN  
DO IT.

93

00:06:53,580 --> 00:07:02,100

IT IS MY PLEASURE TO INTRODUCE AN ADVOCATE  
FOR EDUCATION AND EMPOWERMENT OF WOMEN, MISS

94

00:07:02,100 --> 00:07:05,490

IVANKA TRUMP.

95

00:07:05,490 --> 00:07:08,280

[APPLAUSE]

>> THANK YOU, RAY.

96

00:07:08,280 --> 00:07:11,250

HOW INCREDIBLE IS SHE?

97

00:07:11,250 --> 00:07:12,439

AMAZING.

98

00:07:12,439 --> 00:07:15,689

[APPLAUSE] YOUR WORDS INSPIRE US ALL.

99

00:07:15,689 --> 00:07:17,229

THANK YOU.

100

00:07:17,229 --> 00:07:22,470

I AM HONORED TO BE HERE TODAY AT ONE OF MY  
VERY, VERY FAVORITE MUSEUMS.

101

00:07:22,470 --> 00:07:25,409

THE NATIONAL AIR AND SPACE MUSEUM.

102

00:07:25,409 --> 00:07:32,659

THIS MONTH, WOMEN'S HISTORY MONTH, WE RECOGNIZE  
THE ESSENTIAL ROLE OF WOMEN AND GIRLS IN OUR

103

00:07:32,659 --> 00:07:35,639

SOCIETY AND IN OUR ECONOMY.

104

00:07:35,639 --> 00:07:42,020

TODAY, THIS WONDERFUL EVENT ENCOURAGES US  
TO THINK SPECIFICALLY ABOUT THE ROLE OF WOMEN,

105

00:07:42,020 --> 00:07:44,449

GIRLS, AND BOYS AND S.T.E.M.

106

00:07:44,449 --> 00:07:48,039

SCIENCE, TECHNOLOGY, ENGINEERING AND MATH.

107

00:07:48,039 --> 00:07:54,289

AS WE REFLECT ON THE PAST, THE PRESENT, AND  
THE FUTURE.

108

00:07:54,289 --> 00:07:59,719

THE FILM WE ARE ABOUT TO SEE TITLED "HIDDEN  
FIGURES" HONORS THE LEGACY OF THREE FEMALE

109

00:07:59,719 --> 00:08:05,759

AFRICAN AMERICAN NASA SCIENTISTS WHO HELPED  
LAUNCH THE FIRST ASTRONAUTS INTO ORBIT IN

110

00:08:05,759 --> 00:08:08,189

NASA'S EARLY HISTORY.

111

00:08:08,189 --> 00:08:13,569

HEROS OF HIDDEN FIGURES WERE TRAIL BLAZERS  
FOR WOMEN IN S.T.E.M., PAVING THE WAY FOR

112

00:08:13,569 --> 00:08:19,199

GREATER REPRESENTATION OF WOMEN AND AFRICAN  
AMERICANS IN THESE FIELDS.

113

00:08:19,199 --> 00:08:25,539

THEY EMBODY AMERICA'S SPIRIT OF INNOVATION  
AND INSPIRE US ALL TO CONTINUE PUSHING GENDER

114

00:08:25,539 --> 00:08:29,229

BOUNDARIES ACROSS ALL INDUSTRIES.

115

00:08:29,229 --> 00:08:35,449

THANKS TO THEIR ENORMOUS CONTRIBUTION, TODAY,  
MORE THAN 50 YEARS LATER, MY FATHER'S ADMINISTRATION

116

00:08:35,449 --> 00:08:44,370

HAS EXPANDED NASA'S SPACE EXPLORATION MISSION  
AND ADDED MARS AS A KEY OBJECTIVE.

117

00:08:44,370 --> 00:08:49,620

I CAN ONLY IMAGINE WHERE WE ARE GOING TO BE  
IN ANOTHER 50 YEARS FROM NOW AND, RATHER,

118

00:08:49,620 --> 00:08:57,410

WHERE YOUR GENERATION OF SCIENTISTS, MATHEMETICIANS,  
ENGINEERS AND ASTRONAUTS WILL TAKE US.

119

00:08:57,410 --> 00:08:58,550

OK.

120  
00:08:58,550 --> 00:09:03,320  
SO, RAISE YOUR HAND IF YOU ARE PASSIONATE  
ABOUT S.T.E.M.

121  
00:09:03,320 --> 00:09:05,410  
LET'S SEE.

122  
00:09:05,410 --> 00:09:08,420  
VERY GOOD.

123  
00:09:08,420 --> 00:09:14,030  
RAISE YOUR HAND IF YOU WOULD LIKE TO BE ONE  
OF AMERICA'S GREATEST INNOVATORS.

124  
00:09:14,030 --> 00:09:18,100  
I'M IMPRESSED.

125  
00:09:18,100 --> 00:09:21,589  
YOUR RESPONSE FILLS ME WITH INCREDIBLE HOPE.

126  
00:09:21,589 --> 00:09:25,250  
TODAY'S STATISTICS, THOUGH, NOT SO MUCH.

127  
00:09:25,250 --> 00:09:31,750  
WOMEN MAKE UP 48% OF THE U.S. WORKFORCE, BUT  
ONLY 24% OF S.T.E.M.

128  
00:09:31,750 --> 00:09:32,750  
PROFESSIONALS.

129  
00:09:32,750 --> 00:09:37,190  
THIS STATISTIC SHOWS THAT WE ARE SADLY MOVING  
IN THE WRONG DIRECTION.

130  
00:09:37,190 --> 00:09:42,459  
WOMEN ARE INCREASINGLY UNDERREPRESENTED IN  
IMPORTANT FIELDS OF SCIENCE, TECHNOLOGY, ENGINEERING

131

00:09:42,459 --> 00:09:43,680  
AND MATH.

132  
00:09:43,680 --> 00:09:49,100  
BUT I DARE YOU TO BEAT THESE STATISTICS AND  
ADVANCE THE ROLE OF WOMEN IN S.T.E.M.

133  
00:09:49,100 --> 00:09:50,100  
FIELDS.

134  
00:09:50,100 --> 00:09:55,040  
WOMEN'S PARTICIPATION IN S.T.E.M., WHERE SOME  
OF THE JOBS OF THE FUTURE WILL COME FROM,

135  
00:09:55,040 --> 00:10:03,150  
IS CRITICAL IN THE FIGHT FOR WAGE EQUALITY  
AND FOR THE EMPOWERMENT OF WOMEN IN THE ECONOMY.

136  
00:10:03,150 --> 00:10:08,130  
TO THE YOUNG MEN IN THIS AUDIENCE, YOU ALSO  
HAVE A MAJOR RESPONSIBILITY TO CONTINUE THE

137  
00:10:08,130 --> 00:10:10,100  
WORK OF THE GREAT MEN AND WOMEN IN S.T.E.M.

138  
00:10:10,100 --> 00:10:11,320  
WHO CAME BEFORE YOU.

139  
00:10:11,320 --> 00:10:14,149  
I AM ALSO GOING TO GIVE YOU A CALL TO ACTION.

140  
00:10:14,149 --> 00:10:20,740  
I AM GOING TO URGE YOU TO EMPOWER YOUR FEMALE  
CLASSMATES AND SUPPORT THEM ALONG THE WAY.

141  
00:10:20,740 --> 00:10:25,209  
THE PLAYING FIELD WILL ONLY BE LEVELED IF  
WE CAN ALL WORK TOGETHER TO ELIMINATE THESE

142

00:10:25,209 --> 00:10:27,820  
LONGSTANDING BARRIERS.

143  
00:10:27,820 --> 00:10:32,300  
ON A VERY PERSONAL LEVEL, AS A MOM, I AM TRYING  
TO DO MY PART AS WELL.

144  
00:10:32,300 --> 00:10:36,750  
MY DAUGHTER, ARABELLA AND I, ARE ENROLLING  
IN A CODING CLASS THIS SUMMER.

145  
00:10:36,750 --> 00:10:46,810  
WE ARE EXCITED TO LEARN THIS IMPORTANT NEW  
LANGUAGE TOGETHER.

146  
00:10:46,810 --> 00:10:49,000  
NOW I CHALLENGE YOU TO EMBRACE S.T.E.M.

147  
00:10:49,000 --> 00:10:55,130  
LEARNING AND BECOME PART OF OUR COUNTRY'S  
GREAT HISTORY OF SCIENTISTS AND MATHEMETICIANS

148  
00:10:55,130 --> 00:10:59,440  
AND SUPPORT EACH OTHER IN REACHING THIS TREMENDOUS  
GOAL.

149  
00:10:59,440 --> 00:11:03,440  
INNOVATION IS AT THE HEART OF THE AMERICAN  
GENOME.

150  
00:11:03,440 --> 00:11:06,149  
AMERICAN INNOVATIONS HAVE TRANSFORMED OUR  
WORLDS.

151  
00:11:06,149 --> 00:11:10,899  
FROM THE LIGHTBULB TO THE SMART PHONE, AMERICA  
LEADS BY EXAMPLE.

152  
00:11:10,899 --> 00:11:16,540  
AND, YOU CAN CONTINUE TO MOVE THE NEEDLE IN

FAVOR OF GREATER INNOVATION.

153

00:11:16,540 --> 00:11:19,500

YOU ARE THE NEXT GENERATION OF INNOVATORS.

154

00:11:19,500 --> 00:11:25,290

YOU ARE THE FUTURE AND THE FUTURE IS IN YOUR  
VERY CAPABLE HANDS.

155

00:11:25,290 --> 00:11:30,230

IT IS NOW MY TREMENDOUS HONOR AND PLEASURE  
TO INTRODUCE TO YOU SOMEONE WHO IS A GREAT

156

00:11:30,230 --> 00:11:35,100

CHAMPION FOR EACH AND EVERY ONE OF YOU AND  
WHO IS THE MASTERMIND BEHIND THIS INSPIRING

157

00:11:35,100 --> 00:11:40,540

EVENT CELEBRATING THE WORK YOU ARE DOING IN  
YOUR SCHOOLS AND IN STEM FIELDS.

158

00:11:40,540 --> 00:11:45,760

SECRETARY BETSY DEVOS.

159

00:11:45,760 --> 00:11:51,610

[APPLAUSE]

>> THANK YOU SO MUCH, IVANKA, FOR THAT VERY

160

00:11:51,610 --> 00:11:54,569

KIND INTRODUCTION AND FOR YOUR GREAT REMARKS.

161

00:11:54,569 --> 00:12:00,259

AND, THANK YOU TO GENERAL DAILY FOR HOSTING  
US HERE AT THE MUSEUM TODAY.

162

00:12:00,259 --> 00:12:04,040

THANK YOU TO THE ENGINEERS AND OUR ASTRONAUT  
FOR BEING HERE TODAY.

163

00:12:04,040 --> 00:12:08,860

WE ARE EXCITED TO HEAR FROM YOU IN A FEW MOMENTS.

164

00:12:08,860 --> 00:12:13,509

I WANT TO BEGIN, THOUGH, BY ASKING ALL OF THE STUDENTS IN THE AUDIENCE, HOW MANY OF

165

00:12:13,509 --> 00:12:16,220

YOU HAVE DREAMPT OF BEING AN ASTRONAUT?

166

00:12:16,220 --> 00:12:18,520

CAN I SEE A SHOW OF HANDS?

167

00:12:18,520 --> 00:12:20,470

QUITE A FEW.

168

00:12:20,470 --> 00:12:25,180

HOW MANY OF YOU WOULD LIKE TO GO INTO OUTER SPACE SOME DAY?

169

00:12:25,180 --> 00:12:26,180

LOTS MORE HANDS.

170

00:12:26,180 --> 00:12:30,760

WELL, YOU ARE GOING TO NEED THE ONES THAT FIRST RAISED THEIR HANDS TO GET ON THAT FIRST.

171

00:12:30,760 --> 00:12:35,930

TODAY, YOU ARE GOING TO LEARN ABOUT SOME OF THE PEOPLE WHO FIRST MADE IT POSSIBLE FOR

172

00:12:35,930 --> 00:12:38,750

PEOPLE TO GO TO SPACE.

173

00:12:38,750 --> 00:12:44,110

I AM GOING TO DATE MYSELF AND SAY I'M PROBABLY ONE OF THE FEW IN THIS ROOM THAT ACTUALLY

174

00:12:44,110 --> 00:12:49,130

REMEMBERS WHEN A HUMAN FIRST STEPPED FOOT  
ON THE MOON.

175  
00:12:49,130 --> 00:12:55,440  
I DON'T KNOW HOW MANY OF YOU STUDENTS HAVE  
SEEN VIDEO FILM OR FILM FOOTAGE OF THAT EVENT.

176  
00:12:55,440 --> 00:12:58,630  
CAN I SEE A SHOW OF HANDS?

177  
00:12:58,630 --> 00:13:00,660  
FOR THAT EVENT, AGAIN?

178  
00:13:00,660 --> 00:13:02,010  
THAT WAS AN AMAZING MOMENT.

179  
00:13:02,010 --> 00:13:04,690  
I THINK I WAS 10 YEARS OLD AT THE TIME.

180  
00:13:04,690 --> 00:13:11,649  
AND, I WILL NEVER FORGET THE FEELING OF PRIDE  
THAT I HAD BY SEEING OUR AMERICAN ASTRONAUT

181  
00:13:11,649 --> 00:13:14,040  
SET FOOT ON THE MOON.

182  
00:13:14,040 --> 00:13:17,290  
YOU HERE REPRESENT THE FUTURE FOR THIS NATION.

183  
00:13:17,290 --> 00:13:23,300  
AND IVANKA TALKED ABOUT THE FACT THAT HER  
FATHER HAS SET OUT THE GOAL AND THE ASPIRATION

184  
00:13:23,300 --> 00:13:30,500  
OF REACHING MARS WITH HUMANS AND I KNOW THAT  
THERE'S PROBABLY SOMEONE IN THIS AUDIENCE

185  
00:13:30,500 --> 00:13:33,240  
WHO IS GOING TO BE PART OF THAT IMPORTANT

MISSION.

186

00:13:33,240 --> 00:13:37,160

I AM EXCITED ABOUT THE MOVIE THAT YOU ARE ABOUT TO SEE.

187

00:13:37,160 --> 00:13:38,661

I HAVE HAD THE OPPORTUNITY TO SEE IT.

188

00:13:38,661 --> 00:13:41,319

IT IS A REALLY INSPIRING MOVIE.

189

00:13:41,319 --> 00:13:46,319

AND, THE WOMEN IN THE MOVIE IN THIS MOVIE "HIDDEN FIGURES" SHOW THAT IT DOESN'T MATTER

190

00:13:46,319 --> 00:13:52,910

WHETHER YOU ARE A BOY OR A GIRL, WHETHER YOU ARE BLACK OR WHITE, YOU CAN BE GREAT.

191

00:13:52,910 --> 00:13:54,670

AT WHATEVER YOU DO.

192

00:13:54,670 --> 00:13:56,949

SO LONG AS YOU BELIEVE IN YOURSELF.

193

00:13:56,949 --> 00:14:01,910

YOU WORK HARD AND YOU STAY TRUE TO YOUR CONVICTIONS.

194

00:14:01,910 --> 00:14:04,950

IN A MINUTE, WE ARE GOING TO MEET AN ACCOMPLISHED ASTRONAUT.

195

00:14:04,950 --> 00:14:08,639

BUT I WANT TO MENTION ANOTHER TRAIL BLAZER THAT I RECENTLY MET.

196

00:14:08,639 --> 00:14:10,200

HER NAME IS SHASTA WISE.

197  
00:14:10,200 --> 00:14:14,790  
SHE AND HER FAMILY FLED AFGHANISTAN WHEN SHE  
WAS A YOUNG GIRL.

198  
00:14:14,790 --> 00:14:17,550  
SHE DIDN'T FLY IN A PLANE UNTIL SHE WAS IN  
HIGH SCHOOL.

199  
00:14:17,550 --> 00:14:24,240  
BUT, FROM THE MOMENT SHE TOOK OFF ON HER FIRST  
FLIGHT, SHE KNEW SHE WANTED TO BE A PILOT.

200  
00:14:24,240 --> 00:14:27,870  
SHE WAS COMMITTED TO HER DREAM AND SHE WORKED  
HARD TO ACHIEVE IT.

201  
00:14:27,870 --> 00:14:32,810  
SHE BECAME THE FIRST CIVILIAN FEMALE PILOT  
FROM AFGHANISTAN.

202  
00:14:32,810 --> 00:14:38,240  
AND NOW, SHE'S FOUNDED HER OWN NONPROFIT CALLED  
"DREAMS SOAR" WITH A MISSION OF INSPIRING

203  
00:14:38,240 --> 00:14:40,320  
THE NEXT GENERATION OF S.T.E.M.

204  
00:14:40,320 --> 00:14:42,970  
AND AVIATION PROFESSIONALS.

205  
00:14:42,970 --> 00:14:48,529  
SHE'S ABOUT TO BEGIN A FLIGHT AROUND THE WORLD  
TO ENCOURAGE WOMEN TO GET INVOLVED IN S.T.E.M.

206  
00:14:48,529 --> 00:14:50,029  
AND AVIATION.

207  
00:14:50,029 --> 00:14:54,150

SHE'S STOPPING IN 28 COUNTRIES ON FIVE CONTINENTS.

208  
00:14:54,150 --> 00:15:01,139  
SHE'S JUST ONE OF MANY TRAILBLAZING YOUNG  
WOMEN WHO ARE PROMOTING THE IMPORTANCE OF

209  
00:15:01,139 --> 00:15:02,139  
S.T.E.M.

210  
00:15:02,139 --> 00:15:04,589  
EDUCATION AND THE FIELD OF AVIATION.

211  
00:15:04,589 --> 00:15:08,410  
NOW, THERE ARE STILL BARRIERS TO OVERCOME.

212  
00:15:08,410 --> 00:15:13,699  
JUST LIKE THERE WERE FOR ALL OF THE WOMEN  
THAT YOU ARE MEETING TODAY.

213  
00:15:13,699 --> 00:15:15,760  
THEY PAVED THE WAY FOR YOUR SUCCESS.

214  
00:15:15,760 --> 00:15:21,420  
BUT, YOU CAN DO YOUR PART TO IMPROVE THE LIVES  
OF WOMEN IN THE FUTURE.

215  
00:15:21,420 --> 00:15:29,339  
I MENTOR A TEENAGE GIRL IN MY HOMETOWN AND  
THAT'S BEEN A VERY, VERY INFORMATIVE RELATIONSHIP

216  
00:15:29,339 --> 00:15:30,339  
FOR ME.

217  
00:15:30,339 --> 00:15:32,430  
A VERY IMPORTANT RELATIONSHIP.

218  
00:15:32,430 --> 00:15:38,860  
I WANT TO ENCOURAGE THE YOUNG GIRLS IN THIS  
ROOM AND THE YOUNG BOYS, TO THINK ABOUT MENTORING

219

00:15:38,860 --> 00:15:40,470  
IN YOUR LIFE.

220

00:15:40,470 --> 00:15:44,339  
WHO HERE HAS A YOUNGER SISTER OR A YOUNGER  
BROTHER?

221

00:15:44,339 --> 00:15:47,040  
OR A YOUNGER COUSIN?

222

00:15:47,040 --> 00:15:53,459  
I HOPE THAT YOU NEVER UNDERESTIMATE THE IMPACT  
THAT YOU CAN HAVE ON THEIR LIVES.

223

00:15:53,459 --> 00:15:58,350  
BY BEING A GOOD EXAMPLE AND BY ENCOURAGING  
THEM TO BE THE BEST THEY CAN BE AT WHATEVER

224

00:15:58,350 --> 00:16:01,870  
THEY CHOOSE TO DO.

225

00:16:01,870 --> 00:16:08,860  
WE ARE VERY FORTUNATE TO HAVE SOMEONE HERE  
TODAY WHO PERSONIFIES A TRAIL■BLAZING WOMAN

226

00:16:08,860 --> 00:16:09,959  
IN S.T.E.M.

227

00:16:09,959 --> 00:16:11,750  
AND AVIATION.

228

00:16:11,750 --> 00:16:12,970  
ASTRONAUT KAY HYRE.

229

00:16:12,970 --> 00:16:19,070  
SHE WAS BORN AND RAISED IN MOBILE, ALABAMA  
AND SHE GRADUATED FROM THE UNITED STATES NAVAL

230

00:16:19,070 --> 00:16:20,699

ACADEMY.

231

00:16:20,699 --> 00:16:28,350

IN 1993, SHE BECAME THE FIRST FEMALE IN THE  
U.S. MILITARY ASSIGNED TO A COMBAT CREW.

232

00:16:28,350 --> 00:16:32,290

SHE STARTED ASTRONAUT TRAINING IN 1995.

233

00:16:32,290 --> 00:16:36,350

SHE HAS ORBITED THE EARTH OVER 400 TIMES.

234

00:16:36,350 --> 00:16:40,810

AND HAS LOGGED OVER 711 HOURS IN SPACE.

235

00:16:40,810 --> 00:16:44,829

SHE ALSO HELPED BUILD THE INTERNATIONAL SPACE  
STATION.

236

00:16:44,829 --> 00:16:46,790

SHE IS QUITE A TRAIL BLAZER.

237

00:16:46,790 --> 00:16:50,360

AND I AM PROUD TO INTRODUCE YOU TO CAPTAIN  
KAY HYRE.

238

00:16:50,360 --> 00:16:55,769

[APPLAUSE]

>> THANK YOU SO MUCH.

239

00:16:55,769 --> 00:16:59,029

>> WELL, THANK YOU.

240

00:16:59,029 --> 00:17:01,579

IT'S REALLY A TREAT FOR ME TO BE HERE TODAY.

241

00:17:01,579 --> 00:17:04,290

HOPEFULLY YOU ARE FEELING THE SAME.

242

00:17:04,290 --> 00:17:11,890

AND, IT'S ESPECIALLY FUN TO SEE HOW MANY OF  
YOU RAISED YOUR HANDS WHEN ASKED IF YOU WOULD

243

00:17:11,890 --> 00:17:14,430

LIKE TO GO INTO SPACE.

244

00:17:14,430 --> 00:17:17,900

I SAW A LOT OF HANDS THERE.

245

00:17:17,900 --> 00:17:20,890

NOW, I UNDERSTAND THAT NOT EVERYBODY WANTS  
TO GO INTO SPACE.

246

00:17:20,890 --> 00:17:23,520

SOME PEOPLE MIGHT THINK IT'S A LITTLE BIT  
SCARY.

247

00:17:23,520 --> 00:17:28,530

OR, TOO HARD OR TOO MUCH WORK OR CERTAINLY  
YOU WOULD HAVE HAD TO HAVE STARTED PLANNING

248

00:17:28,530 --> 00:17:31,840

THAT CAREER OUT WHEN YOU WERE THREE YEARS  
OLD OR SOMETHING LIKE THAT.

249

00:17:31,840 --> 00:17:35,420

WELL, I'M HERE TO TELL YOU THAT'S NOT QUITE  
THE CASE.

250

00:17:35,420 --> 00:17:38,620

I DIDN'T HAVE THAT SET CAREER PATH.

251

00:17:38,620 --> 00:17:43,250

AS A MATTER OF FACT, WHEN I WAS A LITTLE KID,  
AND I SAW PEOPLE FLYING IN SPACE, I THOUGHT

252

00:17:43,250 --> 00:17:47,530  
FOR SURE BY THE TIME I WAS AN ADULT, EVERYBODY  
WOULD BE FLYING IN SPACE.

253  
00:17:47,530 --> 00:17:52,140  
WE WOULD BE ABLE TO BUY A TICKET JUST LIKE  
WE DO FLYING ON AN AIRLINE.

254  
00:17:52,140 --> 00:17:53,320  
MAYBE YOU CAN MAKE THAT HAPPEN.

255  
00:17:53,320 --> 00:17:54,940  
TO ME, IT SLOWED DOWN A LITTLE BIT.

256  
00:17:54,940 --> 00:18:00,210  
I THINK WE NEED TO ACCELERATE THIS BACK UP  
AND GIVE MORE AND MORE PEOPLE THE OPPORTUNITY

257  
00:18:00,210 --> 00:18:01,780  
TO FLY IN SPACE.

258  
00:18:01,780 --> 00:18:05,340  
BUT ■■ AS YOU CAN TELL, WE ARE TALKING  
ABOUT S.T.E.M.

259  
00:18:05,340 --> 00:18:08,070  
SCIENCE, TECHNOLOGY, ENGINEERING AND MATH.

260  
00:18:08,070 --> 00:18:14,070  
FLYING IN SPACE INCORPORATES ALL OF THOSE  
DISCIPLINES AND IT TAKES SO MANY WILL DIFFERENT

261  
00:18:14,070 --> 00:18:20,630  
AREAS OF ENGINEERING AND MATH AND TECHNOLOGY  
TO SAFELY PUT PEOPLE INTO SPACE AND SAFELY

262  
00:18:20,630 --> 00:18:22,710  
BRING THEM BACK HOME.

263

00:18:22,710 --> 00:18:25,460

AND THEN, EVEN WHILE WE ARE UP THERE, A LOT OF YOU PROBABLY THINK WE ARE JUST PLAYING

264

00:18:25,460 --> 00:18:28,150

AROUND ALL THE TIME BECAUSE THOSE ARE THE ONLY PICTURES YOU SEE.

265

00:18:28,150 --> 00:18:29,150

RIGHT?

266

00:18:29,150 --> 00:18:31,680

YOU SEE PICTURES OF ASTRONAUTS PLAYING AROUND, FLOATING IN THE SPACE CRAFT.

267

00:18:31,680 --> 00:18:37,770

WELL, ACTUALLY, WE ARE WORKING THE WHOLE TIME AS WE ARE SITTING HERE TODAY IN THIS AUDITORIUM,

268

00:18:37,770 --> 00:18:40,340

WE HAVE SIX PEOPLE ON THE INTERNATIONAL SPACE STATION.

269

00:18:40,340 --> 00:18:42,640

200 MILES OVER US.

270

00:18:42,640 --> 00:18:46,570

AND THEY ARE FLYING AROUND AND IT TAKES THEM ONLY 90 MINUTES TO GET ALL THE WAY AROUND

271

00:18:46,570 --> 00:18:47,570

THE EARTH.

272

00:18:47,570 --> 00:18:50,110

HALF OF THAT TIME IS IN THE DAYLIGHT, HALF OF THAT'S IN THE DARK.

273

00:18:50,110 --> 00:18:54,490

AND THEY ARE CONDUCTING EXPERIMENTS ON THE INTERNATIONAL SPACE STATION WHERE WE HAVE

274

00:18:54,490 --> 00:19:00,841

CONTINUOUSLY HAD CREWS ON BOARD FOR MORE THAN  
THE AMOUNT OF TIME THAT MOST OF YOU HERE HAVE

275

00:19:00,841 --> 00:19:01,841

BEEN ALIVE.

276

00:19:01,841 --> 00:19:08,850

OVER 16 YEARS WE HAVE HAD CREWS ON BOARD THE  
INTERNATIONAL SPACE STATION . CONDUCTING THESE

277

00:19:08,850 --> 00:19:11,780

EXPERIMENTS AND LEARNING MORE ALL THE TIME.

278

00:19:11,780 --> 00:19:15,790

WE LOOK OUT FROM THE SPACE STATION AND SEE  
WHAT WE CAN LEARN IN SPACE.

279

00:19:15,790 --> 00:19:21,710

WE LOOK INSIDE THE SPACE STATION AND LEARN  
WHAT WE CAN ABOUT HOW THE HUMAN BODY RESPONDS

280

00:19:21,710 --> 00:19:23,840

TO BEING IN SPACE FOR LONG DURATION.

281

00:19:23,840 --> 00:19:28,220

WE ARE GOING TO NEED TO KNOW THESE THINGS  
AND HOW WE CAN LIVE AND WHAT KIND OF TECHNOLOGY

282

00:19:28,220 --> 00:19:32,450

WE NEED AS WE DO PUSH FORWARD AND GO TO MARS.

283

00:19:32,450 --> 00:19:35,520

SO, WE ARE ACTUALLY GOING TO NEED YOU.

284

00:19:35,520 --> 00:19:41,510

WE HAVE BEEN SENDING HUMANS INTO SPACE FOR  
OVER 50 YEARS.

285  
00:19:41,510 --> 00:19:43,680  
AND WE HAVE BEEN DOING IT PRETTY MUCH THE  
SAME WAY.

286  
00:19:43,680 --> 00:19:50,660  
I THINK IT'S ABOUT TIME WE GET SOME NEW IDEAS  
AND I SEE A LOT OF FOLKS IN THIS AUDIENCE

287  
00:19:50,660 --> 00:19:53,980  
THAT COULD BE THE ONES TO BRING US THOSE IDEAS.

288  
00:19:53,980 --> 00:19:57,090  
AND LET ME TELL YOU SOMETHING ABOUT THESE  
IDEAS.

289  
00:19:57,090 --> 00:20:00,000  
WE FLEW THE SPACE SHUTTLE FOR OVER 30 YEARS.

290  
00:20:00,000 --> 00:20:02,060  
THAT'S A LONG TIME.

291  
00:20:02,060 --> 00:20:03,910  
THAT'S LIKE TWICE YOUR LIFETIME.

292  
00:20:03,910 --> 00:20:04,910  
RIGHT?

293  
00:20:04,910 --> 00:20:07,340  
SO, OVER 30 YEARS WE FLEW THE SPACE SHUTTLE.

294  
00:20:07,340 --> 00:20:11,580  
BUT THE FIRST CONCEPT FOR IT WAS CONSIDERED  
ABSOLUTELY CRAZY.

295  
00:20:11,580 --> 00:20:17,310  
WE ARE GOING TO TAKE A SPACE CRAFT AND WE  
ARE GOING TO RE■USE IT?

296  
00:20:17,310 --> 00:20:22,740  
BECAUSE, BEFORE THAT, WE JUST SENT ASTRONAUTS  
UP ON A LITTLE CAPSULE, ON TOP OF A ROCKET,

297  
00:20:22,740 --> 00:20:28,050  
WE THREW THE ROCKET AWAY AND THEN WHEN THE  
CAPSULE CAME BACK T PARACHUTED DOWN, LANDED

298  
00:20:28,050 --> 00:20:32,060  
IN THE WATER AND WE PUT THE CAPSULE IN A MUSEUM.

299  
00:20:32,060 --> 00:20:36,780  
BUT, THE WHOLE IDEA FOR A SPACE SHUTTLE WAS  
■■ IT WAS GOING TO BE KIND OF LIKE A ROCKET,

300  
00:20:36,780 --> 00:20:40,580  
KIND OF LIKE A SPACE CRAFT AND KIND OF LIKE  
AN AIRPLANE.

301  
00:20:40,580 --> 00:20:42,730  
BUT THE AIRPLANE DIDN'T HAVE ENGINES TO LAND.

302  
00:20:42,730 --> 00:20:44,170  
YOU HAD ONE SHOT AT LANDING.

303  
00:20:44,170 --> 00:20:49,160  
SO, YOU LAUNCHED LIKE A ROCKET WITH SOLID  
ROCKET BOOSTERS ON EITHER SIDE AND ROCKET

304  
00:20:49,160 --> 00:20:50,800  
ENGINES ON THE BACK.

305  
00:20:50,800 --> 00:20:58,500  
FLEW IN SPACE LIKE AN ORBITING LABORATORY,  
WE DEPLOYED SATELLITES, WE REPAIRED SATELLITES

306  
00:20:58,500 --> 00:21:03,990  
OUT HERE IN THE MUSEUM YOU CAN SEE MOCKUPS  
OF THE HUBBLE SPACE TELESCOPE AND OTHER SATELLITES.

307  
00:21:03,990 --> 00:21:07,570  
WE DID LOTS OF SPACE WALKS GOING OUTSIDE THE  
SPACE CRAFT.

308  
00:21:07,570 --> 00:21:11,390  
AND, WE BUILT THE INTERNATIONAL SPACE STATION.

309  
00:21:11,390 --> 00:21:17,510  
THAT'S JUST A GLORIOUS MONUMENT TO WHAT WE  
CAN DO WHEN WE WORK TOGETHER ESPECIALLY IN

310  
00:21:17,510 --> 00:21:18,510  
THESE S.T.E.M.

311  
00:21:18,510 --> 00:21:21,940  
FIELDS WITH ALL OF OUR INTERNATIONAL PARTNERS.

312  
00:21:21,940 --> 00:21:26,530  
WE DID ALL OF THIS WITH THE SPACE SHUTTLE  
AND THEN AS IT CAME BACK TO LAND, IT WAS LIKE

313  
00:21:26,530 --> 00:21:27,530  
A BIG GLIDER.

314  
00:21:27,530 --> 00:21:31,720  
IT LOOKED LIKE AN AIRPLANE THAT ACTUALLY LANDED  
ON A RUNWAY LIKE AN AIRPLANE.

315  
00:21:31,720 --> 00:21:33,940  
THEN WE REFURBISHED IT AND FLEW IT AGAIN.

316  
00:21:33,940 --> 00:21:37,540  
WE DID THAT FOR 135 MISSIONS.

317  
00:21:37,540 --> 00:21:43,340  
THAT CONCEPT OF DOING THAT WAS CONSIDERED  
ABSOLUTELY CRAZY IN THE 1970s.

318  
00:21:43,340 --> 00:21:48,420  
BUT WE PROVED IT OUT AND THERE WE WORKED IT  
AND WE HAVE, AGAIN, WE GOT THE INTERNATIONAL

319  
00:21:48,420 --> 00:21:49,650  
SPACE STATION OUT OF IT.

320  
00:21:49,650 --> 00:21:51,100  
SO, HERE WE ARE TODAY.

321  
00:21:51,100 --> 00:21:57,310  
WITH THE INTERNATIONAL SPACE STATION, WITH  
ASTRONAUTS PEGGY WHITSON AND SHANE KIMBRO

322  
00:21:57,310 --> 00:22:02,970  
WITH INTERNATIONAL PARTNERS FROM RUSSIA AND  
ALSO FRANCE ON BOARD CONDUCTING EXPERIMENTS

323  
00:22:02,970 --> 00:22:08,400  
AND LIVING DAY TO DAY, EVERY DAY, JUST, THEY  
ARE LIVEING IN THIS MICRO GRAVITY OF SPACE

324  
00:22:08,400 --> 00:22:09,840  
AND CONDUCTING EXPERIMENTS.

325  
00:22:09,840 --> 00:22:12,950  
BUT, YOU KNOW, THEY DIDN'T GET THERE BY THEMSELVES.

326  
00:22:12,950 --> 00:22:19,740  
JUST AS YOU ARE GOING TO SEE IN THE MOVIE  
IN A LITTLE WHILE, IT'S WAY MORE THAN THE

327  
00:22:19,740 --> 00:22:20,740  
ASTRONAUTS.

328  
00:22:20,740 --> 00:22:23,800  
WE ARE THE FORTUNATE ONES WHO GET TO FLY IN  
SPACE.

329

00:22:23,800 --> 00:22:29,450

WE ARE THE ONES THAT MAYBE YOU SEE THE PICTURES  
OF AND, BELIEVE ME, I DO FEEL VERY, VERY LUCKY

330

00:22:29,450 --> 00:22:36,280

TO HAVE HAD AN OPPORTUNITY TO FLY IN SPACE  
TWO TIMES AND ALSO TO HELP BUILD THE INTERNATIONAL

331

00:22:36,280 --> 00:22:37,280

SPACE STATION.

332

00:22:37,280 --> 00:22:48,060

MY MOST RECENT SPACE SHUTTLE MISSION I INSTALLED  
A WHOLE BIG ROOM, NODE 3 AND A CUPOLA, A BIG

333

00:22:48,060 --> 00:22:49,060

BAY WIN DID HE, ON THE INTERNATIONAL SPACE  
STATION.

334

00:22:49,060 --> 00:22:51,390

BUT IT TAKES SO MANY MANY DIFFERENT PEOPLE  
TO DO THAT AND ALL KINDS OF DISCIPLINES.

335

00:22:51,390 --> 00:22:57,680

SO, MAYBE IF YOU DON'T WANT TO FLY IN SPACE  
YOU CAN STILL COME HELP US, JUST LIKE OUR

336

00:22:57,680 --> 00:23:04,260

ENGINEERS AT NASA THAT I WOULD LIKE TO INTRODUCE  
YOU TO SOME OF THEM.

337

00:23:04,260 --> 00:23:12,010

SO STARTING OFF, WE HAVE WITH US TODAY SOME  
OF OUR WOMEN ENGINEERS THAT HAVE HELPED US

338

00:23:12,010 --> 00:23:16,690

NOT ONLY FLY IN SPACE, BUT ALSO TO EXPLORE  
SPACE.

339

00:23:16,690 --> 00:23:21,190  
EXPLORE INTERPLANETARY SYSTEMS AND UNIVERSES.

340  
00:23:21,190 --> 00:23:26,920  
STARTING OFF, WE HAVE SANDRA KAUFMANN.

341  
00:23:26,920 --> 00:23:33,090  
SANDRA ■■ [APPLAUSE] ■■ SANDRA IS  
THE EARTH SCIENCE DIVISION DEPUTY DIRECTOR

342  
00:23:33,090 --> 00:23:35,960  
AT NASA HEADQUARTERS.

343  
00:23:35,960 --> 00:23:46,840  
AND SHE HELPS US STUDY A VERY IMPORTANT PLANET  
TO US . OUR OWN EARTH.

344  
00:23:46,840 --> 00:23:48,690  
>> CAN YOU HEAR ME?

345  
00:23:48,690 --> 00:23:49,690  
OK.

346  
00:23:49,690 --> 00:23:53,210  
SO, THANK YOU SO MUCH FOR HAVING ME HERE TODAY.

347  
00:23:53,210 --> 00:23:58,540  
I WAS BORN IN A VERY SMALL COUNTRY IN CENTRAL  
AMERICA CALLED COSTA RICA.

348  
00:23:58,540 --> 00:24:05,490  
AND, MY DREAM OF BECOMING A NASA EMPLOYEE  
STARTED WHEN I WAS SEVEN YEARS OLD WHEN APOLLO

349  
00:24:05,490 --> 00:24:06,900  
WENT TO THE MOON.

350  
00:24:06,900 --> 00:24:09,560  
SO NOW YOU KNOW HOW OLD I AM.

351  
00:24:09,560 --> 00:24:17,070  
AND, NOT TO BORE YOU WITH THE WHOLE STORY  
OF MY LIFE, IT TOOK MANY, MANY YEARS AND A

352  
00:24:17,070 --> 00:24:20,290  
LOT OF EFFORT, BUT I STAYED TRUE TO MY DREAM.

353  
00:24:20,290 --> 00:24:23,150  
WANTED TO WORK IN SPACE.

354  
00:24:23,150 --> 00:24:24,920  
THINGS RELATED TO SPACE.

355  
00:24:24,920 --> 00:24:30,810  
I NEVER REALLY WANTED TO BE AN ASTRONAUT LIKE  
KAY, BUT I WANTED TO BE INVOLVED IN THE SPACE

356  
00:24:30,810 --> 00:24:31,810  
PROGRAM.

357  
00:24:31,810 --> 00:24:39,340  
I WENT THROUGH HIGH SCHOOL AND COLLEGE LIKE,  
YOU KNOW, MOST OF THE PEOPLE WHO BECOME ENGINEERS.

358  
00:24:39,340 --> 00:24:43,350  
WHEN I STARTED IN COLLEGE, I EVEN HAD A COUNSELOR  
TELL ME THAT I COULDN'T STUDY ENGINEERING

359  
00:24:43,350 --> 00:24:45,280  
BECAUSE I WAS A MANY WOULD.

360  
00:24:45,280 --> 00:24:52,690  
BUT EVEN WITH ALL OF THAT, I OVERCAME ALL  
OF THOSE THINGS AND I KEPT DREAMING, CONTINUED

361  
00:24:52,690 --> 00:24:53,690  
MY DREAM.

362

00:24:53,690 --> 00:24:54,940

I WANTED TO BE AN ENGINEER.

363

00:24:54,940 --> 00:25:00,000

AND SO, IN ORDER FOR ME TO BE AN ENGINEER  
THAT I WANTED I HAD TO COME TO THE UNITED

364

00:25:00,000 --> 00:25:01,000

STATES.

365

00:25:01,000 --> 00:25:05,700

AND EVENTUALLY I BECAME A CITIZEN AND EVENTUALLY,  
I GRADUATED.

366

00:25:05,700 --> 00:25:10,882

I HAVE A DEGREE IN ELECTRICAL ENGINEERING,  
A DEGREE IN PHYSICS AND, YOU KNOW, THROUGH

367

00:25:10,882 --> 00:25:15,980

MY 26-YEAR CAREER AT NASA, I HAVE DONE A  
LOT OF WONDERFUL THINGS, WORKED WITH A LOT

368

00:25:15,980 --> 00:25:16,980

OF PEOPLE.

369

00:25:16,980 --> 00:25:21,500

I HAVE ACTUALLY WORKED ON A SHUTTLE MISSION  
AS AN ENGINEER TRAINING ASTRONAUTS.

370

00:25:21,500 --> 00:25:28,700

THAT WAS THE HUBBLE ■■ WORKED IN MANY  
OTHER MISSIONS I HAVE TOUCHED PRETTY MUCH

371

00:25:28,700 --> 00:25:32,390

ALL OF THE AREAS OF SCIENCE THAT WE DO AT  
NASA.

372

00:25:32,390 --> 00:25:36,210

ASTRO PHYSICS, EARTH SCIENCE AND PLANETARY.

373  
00:25:36,210 --> 00:25:42,600  
I WORKED ON THE LAST MISSION TO MARS THAT  
WE LAUNCHED, AND THAT WAS A COOL, COOL THING.

374  
00:25:42,600 --> 00:25:47,850  
A LITTLE PIECE OF ME AND MY COUNTRY, COSTA  
RICA, IS IN ROUTE AND ORBITING AROUND MARS

375  
00:25:47,850 --> 00:25:49,290  
RIGHT NOW.

376  
00:25:49,290 --> 00:25:55,010  
AND, TO THE POINT WHERE NOW I AM THE DEPUTY  
DIRECTOR FOR THE EARTH SCIENCE DIVISION AT

377  
00:25:55,010 --> 00:25:59,430  
NASA HEADQUARTERS OVERSEEING ALL OF THE SATELLITES  
THAT WE HAVE ORBITING AROUND EARTH.

378  
00:25:59,430 --> 00:26:04,330  
WE HAVE 19 SATELLITES THAT ARE CONSTANTLY  
OBSERVING EARTH AND TRYING TO UNDERSTAND THE

379  
00:26:04,330 --> 00:26:11,550  
EARTH AS A SYSTEM, BECAUSE IT'S ALL INTERCONNECTED  
AND ALSO, BASED ON WHAT WE STUDY, WE TRY TO

380  
00:26:11,550 --> 00:26:18,830  
UNDERSTAND THE SOCIETAL BENEFITS THAT WE CAN  
EXTRACT FROM ALL OF OUR STUDIES AND HOW WE

381  
00:26:18,830 --> 00:26:20,940  
CAN HELP HUMANITY AS A WHOLE.

382  
00:26:20,940 --> 00:26:26,050  
SO, THANK YOU VERY MUCH FOR HAVING ME HERE.

383  
00:26:26,050 --> 00:26:29,060

[APPLAUSE]

>> WELL, THANK YOU.

384

00:26:29,060 --> 00:26:32,520

WE ALSO HAVE TODAY ANDREA ROSAGI.

385

00:26:32,520 --> 00:26:39,240

AND SHE IS WITH US AS THE DEPUTY DIRECTOR  
OF ASTRO PHYSICS AT NASA HEADQUARTERS.

386

00:26:39,240 --> 00:26:42,990

[APPLAUSE]

>> GOOD MORNING.

387

00:26:42,990 --> 00:26:45,910

IT'S REALLY A PLEASURE TO BEING HERE.

388

00:26:45,910 --> 00:26:52,270

I WAS BORN IN WASHINGTON D.C. AND GREW UP  
HERE AND I DISCOVERED MY LOVE FOR MATH AND

389

00:26:52,270 --> 00:26:53,270

SCIENCE IN D.C.

390

00:26:53,270 --> 00:26:54,570

PUBLIC SCHOOLS.

391

00:26:54,570 --> 00:26:59,660

I WOULD COME HOME AND TRY TO REPLICATE THE  
EXPERIMENTS WE DID IN SCIENCE CLASS IN MY

392

00:26:59,660 --> 00:27:00,660

BASEMENT.

393

00:27:00,660 --> 00:27:03,750

I WOULD LOOK FOR HOUSEHOLD ITEMS AND SEE WHAT  
I COULD DO AT HOME.

394

00:27:03,750 --> 00:27:06,120

AND ALONG THE WAY I DISCOVERED POWER TOOLS.

395

00:27:06,120 --> 00:27:11,000

AND ONE OF THE LUCKIEST THINGS FOR ME, WHEN  
I LOOK BACK, IS THAT MY FATHER NEVER ONCE

396

00:27:11,000 --> 00:27:12,820

TOLD ME THAT GIRLS DON'T PLAY WITH POWER TOOLS.

397

00:27:12,820 --> 00:27:15,020

I'M SO GLAD HE NEVER SAID THAT TO ME.

398

00:27:15,020 --> 00:27:17,830

SO, I DECIDED TO PURSUE ENGINEERING.

399

00:27:17,830 --> 00:27:24,190

I GOT A BACHELOR'S AND A MASTER'S IN MECHANICAL  
ENGINEERING AND I STARTED MY CAREER AT NASA

400

00:27:24,190 --> 00:27:30,060

AS AN ENGINEER WHERE I WORKED ON SYSTEMS THAT  
GO INTO SPACE AND SENT DATA BACK DOWN TO EARTH

401

00:27:30,060 --> 00:27:34,930

SO THAT SCIENTISTS HERE CAN HELP UNLOCK THE  
MYSTERIES AROUND US HERE ON OUR HOME PLANET

402

00:27:34,930 --> 00:27:40,320

OF EARTH AND OUR NEIGHBORHOOD IN THE SOLAR  
SYSTEM, PLACES LIKE MARS AND SATURN AND JUPITER

403

00:27:40,320 --> 00:27:43,720

AND THEN THE WONDERS OF THE UNIVERSE.

404

00:27:43,720 --> 00:27:49,800

TODAY, AS THE DEPUTY DIRECTOR OF ASTRO PHYSICS,  
I GET TO LEAD A TEAM OF SCIENTISTS AND ENGINEERS

405

00:27:49,800 --> 00:27:55,050

AND ALL KINDS OF OTHER PROFESSIONALS LOOKING  
AT WHAT ARE PERHAPS THE BIGGEST QUESTIONS

406

00:27:55,050 --> 00:27:57,050  
HUMANS HAVE EVER ASKED.

407

00:27:57,050 --> 00:28:01,920  
WHEN YOU LOOK UP INTO THAT FAMILIAR NIGHT  
SKY AND LOOK AT THOSE STARS AND CONSTELLATIONS,

408

00:28:01,920 --> 00:28:05,090  
WE LOOK AT THE QUESTIONS OF ■■ HOW DID  
IT ALL START?

409

00:28:05,090 --> 00:28:06,140  
HOW DID THE UNIVERSE START?

410

00:28:06,140 --> 00:28:07,590  
HOW DO THINGS WORK OUT THERE?

411

00:28:07,590 --> 00:28:09,830  
HOW IS IT CHANGING?

412

00:28:09,830 --> 00:28:16,080  
AND THE BIG QUESTION ■■ ARE WE ALONE OR  
IS THERE LIFE ELSEWHERE IN THE UNIVERSE?

413

00:28:16,080 --> 00:28:20,380  
NOW, THIS KIND ■■ THESE KIND OF QUESTIONS  
ARE BIG AND WE ARE PUTTING TOGETHER THE PIECES

414

00:28:20,380 --> 00:28:21,380  
OF THE PUZZLE.

415

00:28:21,380 --> 00:28:24,330  
BUT THERE ARE A LOT OF EMPTY SPACES IN THIS  
PUZZLE.

416

00:28:24,330 --> 00:28:27,380

THIS IS A MULTI-GENERATIONAL ENDEAVOR.

417  
00:28:27,380 --> 00:28:32,130  
AND WE NEED YOU TO START FILLING IN MORE PIECES  
OF THAT PUZZLE.

418  
00:28:32,130 --> 00:28:34,550  
THANK YOU AGAIN FOR HAVING ME.

419  
00:28:34,550 --> 00:28:38,990  
[APPLAUSE]  
>> THANK YOU.

420  
00:28:38,990 --> 00:28:43,300  
AND, WE ALSO HAVE WITH US APRIL ERICSON.

421  
00:28:43,300 --> 00:28:49,200  
APRIL IS THE NEW BUSINESS LEAD FOR INSTRUMENT  
SYSTEMS AND TECHNOLOGY DIVISION AT NASA'S

422  
00:28:49,200 --> 00:28:50,670  
GODDARD SPACE FLIGHT CENTER.

423  
00:28:50,670 --> 00:28:51,710  
>> GOOD MORNING.

424  
00:28:51,710 --> 00:28:56,420  
[APPLAUSE]  
>> COME ON NOW I NEED A BETTER SHOUT OUT THAN

425  
00:28:56,420 --> 00:28:57,420  
THAT.

426  
00:28:57,420 --> 00:28:58,420  
GOOD MORNING.

427  
00:28:58,420 --> 00:28:59,420  
YEAH.

428

00:28:59,420 --> 00:29:00,420

YOU ARE GOING TO SEE A PHENOMENAL FILM.

429

00:29:00,420 --> 00:29:01,420

HI.

430

00:29:01,420 --> 00:29:02,790

I GREW UP IN BROOKLYN, NEW YORK.

431

00:29:02,790 --> 00:29:08,210

I ACTUALLY GREW UP IN THE NEW YORK HOUSING  
AUTHORITY PUBLIC HOUSING AUTHORITY AND SO

432

00:29:08,210 --> 00:29:12,760

I HAD MEAGER SURROUNDINGS AND I TELL THAT  
TO PEOPLE BECAUSE EVEN WHEN YOU DON'T HAVE,

433

00:29:12,760 --> 00:29:17,510

SAY, A LOT OF MONEY, YOU CAN REALLY APPLY  
YOURSELF VERY WELL IN SCHOOL AND THAT'S ONE

434

00:29:17,510 --> 00:29:19,700

OF THE AMERICAN WAY.

435

00:29:19,700 --> 00:29:20,700

RIGHT?

436

00:29:20,700 --> 00:29:25,020

GET A GOOD EDUCATION, WORK REALLY HARD AND  
YOU MAYBE GET A GOOD JOB LIKE WE HAVE.

437

00:29:25,020 --> 00:29:26,750

I LOVE MY JOB AT NASA.

438

00:29:26,750 --> 00:29:29,840

SO, I WENT FROM BROOKLYN, NEW YORK TO CAMBRIDGE,  
MASSACHUSETTS.

439

00:29:29,840 --> 00:29:34,940

I WAS SUCH A GOOD STUDENT THAT I GOT A SCHOLARSHIP  
TO GO TO A SCHOOL IN WESTERN MASSACHUSETTS.

440

00:29:34,940 --> 00:29:39,660

THERE WAS A TEACHER THAT INSPIRED ME TO APPLY  
FOR A PROGRAM AT M.I.T.

441

00:29:39,660 --> 00:29:46,910

SO I DID A SUMMER PROGRAM, GOT TO GET INTO  
A FLIGHT SIMULATOR AND I SCORED THREE POINTS

442

00:29:46,910 --> 00:29:49,960

OFF OF A PILOT'S SCORE AND I THOUGHT ■■ WOW.

443

00:29:49,960 --> 00:29:51,230

THIS IS WHAT I WANT TO DO.

444

00:29:51,230 --> 00:29:56,620

SO I WENT TO M.I.T., GOT MY BACHELOR'S IN  
AIR NAUTICAL ASTRONAUT CHALLENGE NEARING.

445

00:29:56,620 --> 00:29:58,000

THAT'S A LOT TO SAY.

446

00:29:58,000 --> 00:30:02,360

BUT WE CALL THOSE PEOPLE ROCKET SCIENTISTS  
OR AEROSPACE ENGINEERS.

447

00:30:02,360 --> 00:30:09,060

I CAME TO SCHOOL AT HOWARD UNIVERSITY AND  
I DID MY WORK IN STRUCTURAL DYNAMICS AND CONTROL

448

00:30:09,060 --> 00:30:14,200

OF LARGE SPACE STRUCTURES LIKE THE INTERNATIONAL  
SPACE STATION AND SO THAT'S REALLY WHY I AM

449

00:30:14,200 --> 00:30:19,180

SO INTERESTED IN SORT OF HUMAN SPACE FLIGHT,  
BUT THEN I CAME ACROSS THIS LITTLE PLACE CALLED

450

00:30:19,180 --> 00:30:20,180

GODDARD.

451

00:30:20,180 --> 00:30:24,950

NASA GODDARD SPACE FLIGHT CENTER WALKING THROUGH  
THE HALLS OF HOWARD AND THEY OFFERED ME THE

452

00:30:24,950 --> 00:30:29,071

OPPORTUNITY TO WORK AS A SUMMER INTERN AND  
I WOWED THEM AND THEY OFFER IMMEDIATE A JOB

453

00:30:29,071 --> 00:30:30,490

THAT SUMMER.

454

00:30:30,490 --> 00:30:34,570

I CAME A FIRST COOP STUDENT THAT WAS A  
Ph.D. STUDENT.

455

00:30:34,570 --> 00:30:40,810

I HAVE TAUGHT AT UNIVERSITIES AND MIDDLE SCHOOLERS.

456

00:30:40,810 --> 00:30:47,530

I TEACH AEROSPACE CLUB AND I HAVE A LOT OF  
FUN BUILDING INSTRUMENTS AND DEVELOPING NEW

457

00:30:47,530 --> 00:30:50,620

TECHNOLOGY FOR OUR SPACE PROGRAM.

458

00:30:50,620 --> 00:30:54,340

SO HOPEFULLY WE WILL GET A CHANCE TO MEET  
YOU GUYS AGAIN.

459

00:30:54,340 --> 00:30:57,240

I HAVE MET SOME OF YOU THIS MORNING BUT I  
HOPE YOU ENJOY THE FILM.

460

00:30:57,240 --> 00:30:58,460

I WANT TO SAY ONE MORE THING.

461  
00:30:58,460 --> 00:31:03,630  
MET CATHERINE JOHNSON 20 YEARS AGO AND I HAVE  
BEEN TALKING ABOUT HER FOR 20 YEARS.

462  
00:31:03,630 --> 00:31:07,510  
NOW EVERYBODY'S TALKING ABOUT HER AND I HOPE  
YOU GUYS WILL, TOO.

463  
00:31:07,510 --> 00:31:10,570  
>> WELL THANK YOU.

464  
00:31:10,570 --> 00:31:15,030  
[APPLAUSE]  
>> THANKS SO MUCH FOR TAKING TIME FROM YOUR

465  
00:31:15,030 --> 00:31:19,420  
JOBS TO COME TODAY AND TALK WITH THE STUDENTS.

466  
00:31:19,420 --> 00:31:23,600  
I WOULD LIKE TO BRING UP ONE MORE PERSON HERE.

467  
00:31:23,600 --> 00:31:25,460  
BUT ■■ ONE MORE THING I FORGOT TO TELL  
YOU.

468  
00:31:25,460 --> 00:31:27,500  
THIS IS KIND OF INTERESTING.

469  
00:31:27,500 --> 00:31:30,430  
HOW MANY PEOPLE HAVE SEEN THE INTERNATIONAL  
SPACE STATION FLY OVER?

470  
00:31:30,430 --> 00:31:32,370  
ONLY A COUPLE PEOPLE.

471  
00:31:32,370 --> 00:31:36,020  
WELL, YOU HAVE OPPORTUNITIES EVERY NOW AND  
THEN.

472  
00:31:36,020 --> 00:31:39,980  
IT'S FLYING AROUND ALL THE TIME, BUT IT DOESN'T  
ALWAYS COME RIGHT OVER US RIGHT AT THE RIGHT

473  
00:31:39,980 --> 00:31:40,980  
TIME.

474  
00:31:40,980 --> 00:31:46,570  
THE ONLY TIMES WE CAN SEE IT, BECAUSE IT'S  
SO HIGH ABOVE US, ABOUT 200 MILES UP, IS WHEN

475  
00:31:46,570 --> 00:31:49,790  
IT FLIES OVER JUST BEFORE SUNRISE.

476  
00:31:49,790 --> 00:31:52,400  
SO IT'S DARK HERE ON THE GROUND BUT THE SUN  
IS SHINING ON IT.

477  
00:31:52,400 --> 00:31:55,900  
OR, IF IT HAPPENS TO FLY BY JUST AFTER SUNSET.

478  
00:31:55,900 --> 00:31:59,600  
DARK HERE ON THE GROUND, BUT THE SUN IS STILL  
SHINING ON IT.

479  
00:31:59,600 --> 00:32:07,620  
WELL, WEDNESDAY, WEDNESDAY AT 8:15 P.M., THERE'S  
GOING TO BE A VISIBLE PASS FOR ALMOST SIX

480  
00:32:07,620 --> 00:32:08,620  
MINUTES.

481  
00:32:08,620 --> 00:32:13,310  
SO, I ENCOURAGE YOU TO GO ON TO THE INTERNET  
AND LOOK FOR HOW TO SEE ■■ HOW TO SIGHT

482  
00:32:13,310 --> 00:32:17,730  
■■ THE INTERNATIONAL SPACE STATION AND

GO OUT AND WATCH IT GO OVER.

483  
00:32:17,730 --> 00:32:26,580  
SO, NOW I WOULD LIKE TO BRING UP BARB GRUBER,  
OUR AEROSPACE EDUCATOR HERE AT THE MUSEUM.

484  
00:32:26,580 --> 00:32:34,670  
[APPLAUSE]  
>> SO, YOU GUYS ■■ YOU GUYS HAVE MET A

485  
00:32:34,670 --> 00:32:38,140  
LOT OF MODERN FIGURES HERE.

486  
00:32:38,140 --> 00:32:43,210  
WHAT I WOULD LIKE TO INTRODUCE YOU TO IS ONE  
OF THOSE HIDDEN FIGURES LIKE WHAT YOU WILL

487  
00:32:43,210 --> 00:32:45,030  
SEE IN THE MOVIE.

488  
00:32:45,030 --> 00:32:47,250  
HER NAME IS MARGARET HAMILTON.

489  
00:32:47,250 --> 00:32:53,110  
SHE WAS A COMPUTER SCIENTIST AND HER TEAM  
WAS IN CHARGE OF PROGRAMMING AND COMPILING

490  
00:32:53,110 --> 00:32:59,650  
THE GUIDANCE COMPUTER FOR THE APOLLO 11.

491  
00:32:59,650 --> 00:33:07,150  
SHE GOT THE TERM "ROPE MOTHER" BECAUSE OF  
THE WAY THAT THEY HAD TO CODE THE MEMORY FOR

492  
00:33:07,150 --> 00:33:08,720  
THE GUIDANCE MISSION.

493  
00:33:08,720 --> 00:33:11,560  
SO, RAISE YOUR HAND IF YOU KNOW WHAT A BIT

IS.

494

00:33:11,560 --> 00:33:13,420

I GOT A FEW.

495

00:33:13,420 --> 00:33:14,650

JUST A BIT.

496

00:33:14,650 --> 00:33:17,010

IT'S EITHER A ONE OR A ZERO.

497

00:33:17,010 --> 00:33:18,060

RIGHT?

498

00:33:18,060 --> 00:33:23,310

SO, THIS IS HOW WE PROGRAM COMPUTERS SINCE  
THE BEGINNING.

499

00:33:23,310 --> 00:33:26,720

AND IT'S STILL HOW WE CAN PROGRAM SOME COMPUTERS.

500

00:33:26,720 --> 00:33:34,540

THE MEMORY OF THE APOLLO GUIDANCE COMPUTER  
CONSISTED OF IRON BEADS WITH WIRES OR ROPE,

501

00:33:34,540 --> 00:33:35,760

RUNNING THROUGH THEM.

502

00:33:35,760 --> 00:33:43,790

THE SIGNAL WOULD, FOR A ONE, WOULD BE IF THE  
WIRE RAN THROUGH THE BEAD AND THE SIGNAL FOR

503

00:33:43,790 --> 00:33:48,050

A ZERO WOULD BE IF THE WIRE RAN AROUND THE  
BEAD.

504

00:33:48,050 --> 00:33:52,070

SO, IT'S A BINARY ONE OR A BINARY ZERO.

505  
00:33:52,070 --> 00:33:55,470  
NOW RAISE YOUR HAND IF YOU KNOW WHAT A BITE  
IS.

506  
00:33:55,470 --> 00:33:57,280  
OK?

507  
00:33:57,280 --> 00:34:01,130  
FOR THOSE WHO DIDN'T RAISE YOUR HAND, A BITE  
IS EIGHT BITS.

508  
00:34:01,130 --> 00:34:04,000  
SO, PULL UP YOUR ROPES.

509  
00:34:04,000 --> 00:34:09,770  
YOU WILL NOTICE THAT YOU HAVE BEADS IN GROUPS  
OF EIGHT.

510  
00:34:09,770 --> 00:34:14,250  
YOU HAVE EIGHT RED ONES, EIGHT WHITE ONES  
AND EIGHT BLUE ONES.

511  
00:34:14,250 --> 00:34:18,339  
SO, EACH OF THOSE REPRESENTS A BITE WORTH  
OF INFORMATION.

512  
00:34:18,339 --> 00:34:22,679  
NOW, NASA HAD NINE YEARS TO GET TO THE MOON  
AND BACK.

513  
00:34:22,679 --> 00:34:25,970  
YOU GUYS HAVE FIVE MINUTES TO CODE.

514  
00:34:25,970 --> 00:34:29,319  
WHAT YOU ARE GOING TO DO, PULL THE WIRE OUT  
OF THE BEADS.

515  
00:34:29,319 --> 00:34:30,819  
ALL RIGHT?

516

00:34:30,819 --> 00:34:34,519

I NEED MY CODES UP ON THE SCREEN.

517

00:34:34,519 --> 00:34:36,279

MY BINARY CONVERSION CHART.

518

00:34:36,279 --> 00:34:37,279

THANK YOU.

519

00:34:37,279 --> 00:34:38,279

ALL RIGHT.

520

00:34:38,279 --> 00:34:40,450

SO, YOU ARE GOING TO CODE YOUR INITIALS.

521

00:34:40,450 --> 00:34:44,129

YOU CAN START AT EITHER THE RED OR THE BLUE  
SIDE.

522

00:34:44,129 --> 00:34:48,700

IF YOU ARE PROGRAMMING A ZERO, YOUR WIRE WILL  
SKIP THE BEAD.

523

00:34:48,700 --> 00:34:54,289

IF YOU ARE CODING A ONE, THE WIRE WILL GO  
THROUGH THE BEAD.

524

00:34:54,289 --> 00:34:56,339

I AM ASSUMING YOU HAVE THREE INITIALS.

525

00:34:56,339 --> 00:34:59,390

IF YOU DON'T HAVE THREE INITIALS, YOU HAVE  
TO IMPROVISE.

526

00:34:59,390 --> 00:35:03,809

YOU CAN EITHER RUN THE WIRES THROUGH ALL THE  
WHITE ONES IF YOU DON'T HAVE A MIDDLE INITIAL.

527

00:35:03,809 --> 00:35:07,089

IF YOU HAVE MORE THAN THREE INITIALS, YOU  
GOT TO PICK YOUR FAVORITE.

528

00:35:07,089 --> 00:35:08,089

OK?

529

00:35:08,089 --> 00:35:12,319

SO, YOU GUYS HAVE FIVE MINUTES TO RUN THE  
WIRES THROUGH.

530

00:35:12,319 --> 00:35:17,890

YOU ARE JUST GOING TO RUN IT THROUGH ■■ EVERYBODY  
IS GOING TO SKIP THEIR FIRST BEAD BECAUSE

531

00:35:17,890 --> 00:35:22,800

BINARY CODE, THAT ZERO IS THE FIRST ONE OF  
EVERY LETTER.

532

00:35:22,800 --> 00:35:26,400

SO YOU GUYS HAVE FIVE MINUTES TO CODE YOUR  
INITIALS.

533

00:35:26,400 --> 00:35:27,400

ALL RIGHT?

534

00:35:27,400 --> 00:35:33,490

AND, OUR GUESTS ARE GOING TO BE OUT THERE  
■■ OH, YOU ARE DEPARTING.

535

00:35:33,490 --> 00:35:34,490

OK.

536

00:35:34,490 --> 00:35:35,510

IT WAS VERY NICE.

537

00:35:35,510 --> 00:35:37,039

THANK YOU.

538

00:35:37,039 --> 00:35:41,630

SO ■■ GO AHEAD AND GET STARTED.

539

00:35:41,630 --> 00:35:48,359

IF YOU GUYS WANT TO HELP THEM.

540

00:35:48,359 --> 00:35:53,500

THAT WOULD BE GREAT.

541

00:35:53,500 --> 00:36:01,089

I WANT TO THANK OUR SPECIAL GUESTS, GENERAL  
DAILY, SECRETARY BETSY DEVOS, IVANKA TRUMP,