1
00:00:10,150 --> 00:00:07,990
you're looking at america's future

2
00:00:12,549 --> 00:00:10,160
the space station freedom will give us a

3
00:00:15,430 --> 00:00:12,559
permanent presence in space

4
00:00:17,430 --> 00:00:15,440
this is also a view of our future hello

5
00:00:19,750 --> 00:00:17,440
my name is joseph henderson this summer

6
00:00:21,269 --> 00:00:19,760
i work for marshall space flight center

7
00:00:23,269 --> 00:00:21,279
in the information and electronic

8
00:00:24,710 --> 00:00:23,279
systems laboratory of the data

9
00:00:26,390 --> 00:00:24,720
management branch

10
00:00:28,470 --> 00:00:26,400
this summer joe helped test this

11
00:00:31,509 --> 00:00:28,480
mechanism that could someday serve as

12
00:00:32,950 --> 00:00:31,519
freedom's front door and parking space

13
00:00:34,549 --> 00:00:32,960

rolled into one

14
00:00:35,830 --> 00:00:34,559
it's called the docking and birthing

15
00:00:37,590 --> 00:00:35,840
mechanism

16
00:00:40,549 --> 00:00:37,600
joe's knowledge of computers played a

17
00:00:42,790 --> 00:00:40,559
major role in completing his evaluation

18
00:00:45,670 --> 00:00:42,800
joe is not a nasa engineer

19
00:00:46,709 --> 00:00:45,680
not yet anyway joe is still in high

20
00:00:51,830 --> 00:00:46,719
school

21
00:00:54,069 --> 00:00:51,840
apprenticeship research program or sharp

22
00:00:56,470 --> 00:00:54,079
budding scientists and engineers are

23
00:00:59,270 --> 00:00:56,480
getting a unique hands-on opportunity in

24
00:01:02,389 --> 00:00:59,280
their chosen field sharp began with its

25
00:01:04,789 --> 00:01:02,399
first students in 1980 and since more

26
00:01:07,190 --> 00:01:04,799
than 140 high school students have

27
00:01:09,030 --> 00:01:07,200
seized the sharp opportunity

28
00:01:11,270 --> 00:01:09,040
the primary goal is to offer

29
00:01:13,670 --> 00:01:11,280
underrepresented minority students the

30
00:01:15,350 --> 00:01:13,680
chance to participate in an intensive

31
00:01:16,710 --> 00:01:15,360
science and engineering apprenticeship

32
00:01:18,789 --> 00:01:16,720
program

33
00:01:20,870 --> 00:01:18,799
eighteen-year-old christine penny worked

34
00:01:22,870 --> 00:01:20,880
in the atomic physics lab

35
00:01:25,270 --> 00:01:22,880
during her study she designed and

36
00:01:28,070 --> 00:01:25,280
developed hardware which automated this

37
00:01:30,230 --> 00:01:28,080
vacuum ultraviolet calibration facility

38
00:01:31,830 --> 00:01:30,240

on the side of this the monochromator

39
00:01:34,710 --> 00:01:31,840
which disperses the light will be

40
00:01:36,630 --> 00:01:34,720
attached a metal motor bracket

41
00:01:38,710 --> 00:01:36,640
which will have a motor that will turn

42
00:01:42,069 --> 00:01:38,720
the gears and change the wavelength of

43
00:01:44,230 --> 00:01:42,079
light using this knob automatically

44
00:01:46,630 --> 00:01:44,240
seventeen-year-old lemoine humphrey here

45
00:01:48,469 --> 00:01:46,640
with nasa's jerry hudgins designed

46
00:01:51,030 --> 00:01:48,479
hardware which will permit precise

47
00:01:54,069 --> 00:01:51,040
movements of materials in a vacuum i was

48
00:01:55,990 --> 00:01:54,079
assigned to do a package on the igds

49
00:01:58,950 --> 00:01:56,000
which is behind me it stands for the

50
00:02:00,230 --> 00:01:58,960
interactive graphics design system

51
00:02:01,749 --> 00:02:00,240
these

52
00:02:04,310 --> 00:02:01,759
three screw holes contain the counter

53
00:02:06,789 --> 00:02:04,320
bore the counterboy is a half drilled

54
00:02:08,469 --> 00:02:06,799
hole that enables the screw not to be on

55
00:02:11,750 --> 00:02:08,479
the surface of the bracket which i was

56
00:02:16,470 --> 00:02:13,990
this is my mentor james blanche and we

57
00:02:18,150 --> 00:02:16,480
are next to the gerber pc 800 computer

58
00:02:20,869 --> 00:02:18,160
which our branch makes printed circuit

59
00:02:25,350 --> 00:02:23,030
i'm jim blanche i've been involved with

60
00:02:27,110 --> 00:02:25,360
the sharp program for

61
00:02:29,510 --> 00:02:27,120
five or six years

62
00:02:32,229 --> 00:02:29,520
i think it's an excellent program

63
00:02:34,470 --> 00:02:32,239

i have had some excellent students

64
00:02:35,990 --> 00:02:34,480
with us during that period we have

65
00:02:37,350 --> 00:02:36,000
gotten a lot of help from them and i

66
00:02:38,630 --> 00:02:37,360
think they've gotten a great deal out of

67
00:02:41,190 --> 00:02:38,640
the program

68
00:02:43,350 --> 00:02:41,200
each student works with a mentor a nasa

69
00:02:46,070 --> 00:02:43,360
scientist or engineer

70
00:02:48,229 --> 00:02:46,080
brian chang wants to be a scientist and

71
00:02:50,550 --> 00:02:48,239
during his study he worked closely with

72
00:02:52,309 --> 00:02:50,560
nasa's dr donald frazier

73
00:02:54,949 --> 00:02:52,319
his summer job gave him hands-on

74
00:02:57,110 --> 00:02:54,959
experience using holography and lasers

75
00:03:00,070 --> 00:02:57,120
for the purpose of testing a theory

76
00:03:02,309 --> 00:03:00,080
involving separation processes

77
00:03:04,390 --> 00:03:02,319
here sixteen-year-old julie mai and her

78
00:03:06,229 --> 00:03:04,400
mentor dr steven seuss

79
00:03:08,149 --> 00:03:06,239
examined solar data

80
00:03:11,589 --> 00:03:08,159
julie worked with computers to create

81
00:03:13,190 --> 00:03:11,599
these digitized pictures of the sun

82
00:03:15,030 --> 00:03:13,200
these students worked an eight-week

83
00:03:17,509 --> 00:03:15,040
schedule at the marshall space flight

84
00:03:19,670 --> 00:03:17,519
center in huntsville alabama

85
00:03:20,630 --> 00:03:19,680
here are the requirements to qualify for

86
00:03:22,309 --> 00:03:20,640
sharp

87
00:03:23,350 --> 00:03:22,319
you must be a citizen of the united

88
00:03:25,910 --> 00:03:23,360

states

89
00:03:28,869 --> 00:03:25,920
parents cannot be employed by nasa

90
00:03:30,550 --> 00:03:28,879
and the minimum age is 16.

91
00:03:32,470 --> 00:03:30,560
each student will be required to write

92
00:03:34,630 --> 00:03:32,480
an abstract of his or her assigned

93
00:03:36,309 --> 00:03:34,640
project and a research paper upon

94
00:03:38,390 --> 00:03:36,319
completion of study

95
00:03:40,149 --> 00:03:38,400
a newsletter is published with articles

96
00:03:42,550 --> 00:03:40,159
written by the students

97
00:03:45,350 --> 00:03:42,560
this lets sharp students nasa wide share

98
00:03:46,789 --> 00:03:45,360
program experiences and project success

99
00:03:48,949 --> 00:03:46,799
stories

100
00:03:52,149 --> 00:03:48,959
students participate in other enrichment

101
00:03:54,789 --> 00:03:52,159
activities lecture series field trips

102
00:03:57,350 --> 00:03:54,799
computer labs and demonstrations

103
00:03:59,110 --> 00:03:57,360
with your participation in sharp you

104
00:04:02,070 --> 00:03:59,120
enter a program that could lead to

105
00:04:03,750 --> 00:04:02,080
future nasa employment opportunities

106
00:04:04,710 --> 00:04:03,760
now let's hear from former sharp

107
00:04:07,110 --> 00:04:04,720
students

108
00:04:09,589 --> 00:04:07,120
dwindling artists trains astronauts at

109
00:04:11,190 --> 00:04:09,599
the payload crew training complex when i

110
00:04:13,429 --> 00:04:11,200
participated in sharp it was during the

111
00:04:15,429 --> 00:04:13,439
summer of 1980 i had just completed my

112
00:04:17,189 --> 00:04:15,439
junior year of high school i was one of

113
00:04:18,710 --> 00:04:17,199

the first participants in the program

114
00:04:19,670 --> 00:04:18,720
offered here at marshall space flight

115
00:04:22,390 --> 00:04:19,680
center

116
00:04:24,070 --> 00:04:22,400
now i'm a permanent employee of nasa i'm

117
00:04:26,790 --> 00:04:24,080
working in the payload crew training

118
00:04:29,749 --> 00:04:26,800
complex at marshall we're responsible

119
00:04:32,550 --> 00:04:29,759
for training crew members on payloads

120
00:04:34,790 --> 00:04:32,560
aboard space lab our responsibility is

121
00:04:36,790 --> 00:04:34,800
the development of software models and

122
00:04:39,350 --> 00:04:36,800
hardware mockups of the experiments to

123
00:04:41,030 --> 00:04:39,360
fly aboard the space lab i'm also

124
00:04:43,189 --> 00:04:41,040
participating in the payload operations

125
00:04:45,030 --> 00:04:43,199
control center pod cadre where we

126
00:04:47,350 --> 00:04:45,040
monitor pre-launch launch and

127
00:04:49,430 --> 00:04:47,360
post-launch activities

128
00:04:51,110 --> 00:04:49,440
ricky howard has always wanted to be an

129
00:04:53,670 --> 00:04:51,120
electrical engineer

130
00:04:57,110 --> 00:04:53,680
sharp prepared him for his career when i

131
00:04:59,189 --> 00:04:57,120
came here in 1981 i was a sharp student

132
00:05:00,550 --> 00:04:59,199
and i really enjoyed the program i

133
00:05:03,110 --> 00:05:00,560
thought it was a

134
00:05:05,189 --> 00:05:03,120
very interesting useful and

135
00:05:06,870 --> 00:05:05,199
stimulating program something that was

136
00:05:08,629 --> 00:05:06,880
very good to do as a high school student

137
00:05:10,629 --> 00:05:08,639
and

138
00:05:12,950 --> 00:05:10,639

i learned a lot from the experience

139
00:05:14,550 --> 00:05:12,960
when i was a sharp student one of the

140
00:05:16,310 --> 00:05:14,560
projects i worked on

141
00:05:18,469 --> 00:05:16,320
led me into the field i'm working now

142
00:05:19,590 --> 00:05:18,479
which is the field of computers

143
00:05:21,990 --> 00:05:19,600
controlling

144
00:05:24,150 --> 00:05:22,000
real world objects right now i'm working

145
00:05:25,830 --> 00:05:24,160
for nasa in the control electronics

146
00:05:27,270 --> 00:05:25,840
branch

147
00:05:29,270 --> 00:05:27,280
working on a

148
00:05:31,110 --> 00:05:29,280
autonomous or automated rendezvous and

149
00:05:32,390 --> 00:05:31,120
docking system basically this system is

150
00:05:33,830 --> 00:05:32,400
going to be put on the orbital

151
00:05:34,870 --> 00:05:33,840
maneuvering vehicle

152
00:05:36,550 --> 00:05:34,880
and will

153
00:05:38,230 --> 00:05:36,560
then be used to go up and capture

154
00:05:41,029 --> 00:05:38,240
satellites to bring them either to the

155
00:05:42,310 --> 00:05:41,039
space station or back to the shuttle

156
00:05:44,469 --> 00:05:42,320
in the future

157
00:05:48,230 --> 00:05:44,479
to find out more about this exciting

158
00:05:49,670 --> 00:05:48,240
summer program please write cm 22

159
00:05:51,990 --> 00:05:49,680
george newby

160
00:05:53,590 --> 00:05:52,000
employee development specialist

161
00:05:56,550 --> 00:05:53,600
personnel office

162
00:05:59,110 --> 00:05:56,560
marshall space flight center alabama

163
00:06:00,870 --> 00:05:59,120

35812

164
00:06:03,430 --> 00:06:00,880
sharp allowed me hands-on experience

165
00:06:05,909 --> 00:06:03,440
with high-tech equipment exposure to the

166
00:06:08,629 --> 00:06:05,919
scientific and engineering world and a

167
00:06:10,469 --> 00:06:08,639
head start for employment with nasa this

168
00:06:12,790 --> 00:06:10,479
gave me a chance to

169
00:06:14,469 --> 00:06:12,800
see different areas of nasa

170
00:06:15,990 --> 00:06:14,479
and a lot of what goes on in a

171
00:06:17,749 --> 00:06:16,000
professional environment something you

172
00:06:19,029 --> 00:06:17,759
don't normally get to see as a high

173
00:06:21,189 --> 00:06:19,039
school student you usually have to wait

174
00:06:23,430 --> 00:06:21,199
until college or beyond

175
00:06:25,110 --> 00:06:23,440
i encourage any student who is given the

176
00:06:27,909 --> 00:06:25,120
opportunity to participate in the

177
00:06:29,590 --> 00:06:27,919
program to take advantage it worked for

178
00:06:31,749 --> 00:06:29,600
me

179
00:06:34,550 --> 00:06:31,759
being involved in the national space

180
00:06:36,150 --> 00:06:34,560
program is an idea that many students