
NASA

1
00:00:08,059 --> 00:00:05,090
with our eyes fixed on all that lies

2
00:00:10,570 --> 00:00:08,069
ahead we remain steadfast in our

3
00:00:14,239 --> 00:00:10,580
pursuits of knowledge exploration

4
00:00:17,300 --> 00:00:14,249
seeking an understanding life here and

5
00:00:20,150 --> 00:00:17,310
beyond we see the opportunities before

6
00:00:23,330 --> 00:00:20,160
us a new system to land humans on the

7
00:00:24,470 --> 00:00:23,340
moon a robotic rover to map ice on the

8
00:00:26,780 --> 00:00:24,480
lunar South Pole

9
00:00:29,780 --> 00:00:26,790
new entry technologies for landing on

10
00:00:33,380 --> 00:00:29,790
Mars an airplane capable of quiet

11
00:00:36,079 --> 00:00:33,390
supersonic flights all of this depress

12
00:00:38,840 --> 00:00:36,089
humanity forward and it is the cadence

13
00:00:41,930 --> 00:00:38,850

of our efforts throughout 2020 that is

14
00:00:44,509 --> 00:00:41,940
building momentum for the future the

15
00:00:46,939 --> 00:00:44,519
International Space Station remains the

16
00:00:50,119 --> 00:00:46,949
jewel of our efforts in low-earth orbit

17
00:00:52,700 --> 00:00:50,129
as we celebrate 20 years of continuously

18
00:00:55,279 --> 00:00:52,710
living and working in space and this

19
00:00:57,799 --> 00:00:55,289
year with commercial partners American

20
00:00:59,149 --> 00:00:57,809
astronauts will once again launch on

21
00:01:03,110 --> 00:00:59,159
American Rockets

22
00:01:06,800 --> 00:01:03,120
from American soil this year we bring to

23
00:01:09,050 --> 00:01:06,810
life the core stage of the most powerful

24
00:01:12,020 --> 00:01:09,060
rocket ever built the Space Launch

25
00:01:14,450 --> 00:01:12,030
System and the Orion spacecraft will

26
00:01:16,969 --> 00:01:14,460
complete its testing then you make its

27
00:01:19,789 --> 00:01:16,979
way to our space coast for the uncrewed

28
00:01:22,789 --> 00:01:19,799
Artemis one mission during the course of

29
00:01:25,730 --> 00:01:22,799
2020 the development of a gateway lunar

30
00:01:29,539 --> 00:01:25,740
station will pave the way for our return

31
00:01:31,910 --> 00:01:29,549
to the moon by 2024 with every

32
00:01:35,959 --> 00:01:31,920
advancement for the moon we push forward

33
00:01:37,550 --> 00:01:35,969
similar capabilities for Mars and just

34
00:01:40,700 --> 00:01:37,560
as we have recently expanded the

35
00:01:43,130 --> 00:01:40,710
astronaut core we once again will invite

36
00:01:45,830 --> 00:01:43,140
explorers to apply for the missions

37
00:01:49,130 --> 00:01:45,840
ahead as we reach farther and farther

38
00:01:51,620 --> 00:01:49,140

out we see more of the intricate beauty

39
00:01:53,870 --> 00:01:51,630
of our home planet our fleet of Earth

40
00:01:56,480 --> 00:01:53,880
satellites and the scientists using

41
00:01:59,539 --> 00:01:56,490
their data will reveal insights about

42
00:02:02,080 --> 00:01:59,549
our ever-changing planet for the first

43
00:02:05,090 --> 00:02:02,090
time we will fly our experimental

44
00:02:06,679 --> 00:02:05,100
all-electric aircraft with motors that

45
00:02:09,440 --> 00:02:06,689
are efficient and

46
00:02:12,140 --> 00:02:09,450
and this year we will see the final

47
00:02:16,190 --> 00:02:12,150
results from our field demos of a system

48
00:02:18,619 --> 00:02:16,200
to support the safe flight of drums in

49
00:02:21,380 --> 00:02:18,629
the drum beat of this year we will see

50
00:02:24,289 --> 00:02:21,390
our spacecraft get closer and closer to

51
00:02:27,770 --> 00:02:24,299
the Sun touch the surface of an asteroid

52
00:02:31,850 --> 00:02:27,780
and launch our most advanced rover yet

53
00:02:34,570 --> 00:02:31,860
to Mars this is a year of action our

54
00:02:38,479 --> 00:02:34,580
progress across this agency is growing

55
00:02:41,539 --> 00:02:38,489
with each milestone we are preparing to

56
00:02:48,240 --> 00:02:41,549
go farther than ever before and lay the

57
00:03:16,060 --> 00:03:01,630
[Music]

58
00:03:19,040 --> 00:03:16,070
[Applause]

59
00:03:21,920 --> 00:03:19,050
well what a great video and what a great

60
00:03:23,750 --> 00:03:21,930
time to be part of NASA I can tell you

61
00:03:26,120 --> 00:03:23,760
the excitement is palpable here at

62
00:03:28,460 --> 00:03:26,130
Stennis as we have an actual flight

63
00:03:32,120 --> 00:03:28,470

stage in our test stand for the first

64
00:03:34,340 --> 00:03:32,130
time in over 49 years welcome to Stennis

65
00:03:37,940 --> 00:03:34,350
Space Center the nation's largest and

66
00:03:39,410 --> 00:03:37,950
premier rocket propulsion test site my

67
00:03:41,870 --> 00:03:39,420
name is Rick Gilbert and I'm both

68
00:03:43,790 --> 00:03:41,880
blessed and honored to serve as director

69
00:03:46,100 --> 00:03:43,800
of this Center and to work with our

70
00:03:48,350 --> 00:03:46,110
talented team welcome to our

71
00:03:51,370 --> 00:03:48,360
distinguished guests members of the NASA

72
00:03:54,380 --> 00:03:51,380
family and everyone watching on NASA TV

73
00:03:57,170 --> 00:03:54,390
welcome to members of the media who help

74
00:03:58,910 --> 00:03:57,180
us share the incredible NASA story this

75
00:04:02,180 --> 00:03:58,920
is one of the most exciting times I've

76
00:04:04,250 --> 00:04:02,190
experienced in my 28 year NASA career as

77
00:04:07,040 --> 00:04:04,260
Stennis nears its 60th year it is

78
00:04:09,350 --> 00:04:07,050
compiled an unparalleled record of

79
00:04:10,280 --> 00:04:09,360
rocket propulsion testing expertise and

80
00:04:12,980 --> 00:04:10,290
excellence

81
00:04:14,990 --> 00:04:12,990
from Apollo program through the Space

82
00:04:17,180 --> 00:04:15,000
Shuttle years and continuing today

83
00:04:20,150 --> 00:04:17,190
Stennis tests the rocket engines and

84
00:04:23,060 --> 00:04:20,160
stages that power this nation's space

85
00:04:24,680 --> 00:04:23,070
dreams we are now on the eve of a new

86
00:04:27,140 --> 00:04:24,690
great new era of space exploration

87
00:04:29,390 --> 00:04:27,150
powered by NASA's new space launch

88
00:04:31,550 --> 00:04:29,400

system rocket built just down the road

89
00:04:34,670 --> 00:04:31,560
at Marshall's Michou assembly facility

90
00:04:37,310 --> 00:04:34,680
the first SLS core stage is currently

91
00:04:38,990 --> 00:04:37,320
installed on our be to test stand for a

92
00:04:42,110 --> 00:04:39,000
series of integrated tests to

93
00:04:44,360 --> 00:04:42,120
demonstrate its readiness to fly NASA

94
00:04:45,830 --> 00:04:44,370
will use SLS to fly Artemis program

95
00:04:48,980 --> 00:04:45,840
missions to establish a sustainable

96
00:04:52,880 --> 00:04:48,990
presence on the moon and prepare for

97
00:04:54,469 --> 00:04:52,890
missions to Mars the core stage now at

98
00:04:57,200 --> 00:04:54,479
Stennis will help launch the maiden

99
00:04:59,540 --> 00:04:57,210
Artemis one test mission the Artemis

100
00:05:02,180 --> 00:04:59,550
three mission will make history when it

101
00:05:05,480 --> 00:05:02,190
carries the first woman and the next man

102
00:05:07,310 --> 00:05:05,490
to the moon by 2020 for those future

103
00:05:09,200 --> 00:05:07,320
missions are being enabled right now at

104
00:05:12,500 --> 00:05:09,210
Stennis which makes it a particular

105
00:05:15,920 --> 00:05:12,510
pleasure to welcome you as well as the

106
00:05:17,420 --> 00:05:15,930
distinguished leader of NASA Jim

107
00:05:19,880 --> 00:05:17,430
brightenstein has served as nasa

108
00:05:21,350 --> 00:05:19,890
administrator for two years he has

109
00:05:22,170 --> 00:05:21,360
embraced that role with unbridled

110
00:05:24,960 --> 00:05:22,180
passion

111
00:05:28,590 --> 00:05:24,970
working to inspire and enable the NASA

112
00:05:31,710 --> 00:05:28,600
family and the public to dream today and

113
00:05:34,650 --> 00:05:31,720

to drive forward I wanted to thank him

114
00:05:37,020 --> 00:05:34,660
for his enthusiasm and his deft skills

115
00:05:39,330 --> 00:05:37,030
navigating discussions on the budget in

116
00:05:42,090 --> 00:05:39,340
Washington DC and we're about to find

117
00:05:46,290 --> 00:05:42,100
out how he did to all of you NASA

118
00:05:46,290 --> 00:05:46,300
Administrator Jim Bryden Stein

119
00:06:03,120 --> 00:05:56,480
[Applause]

120
00:06:03,130 --> 00:06:07,129
go NASA

121
00:06:12,970 --> 00:06:09,260
and go America

122
00:06:16,760 --> 00:06:12,980
[Applause]

123
00:06:19,310 --> 00:06:16,770
it is great to be here at the Stennis

124
00:06:22,250 --> 00:06:19,320
Space Center America's premier proposed

125
00:06:24,110 --> 00:06:22,260
propulsion testing center and I cannot

126
00:06:27,050 --> 00:06:24,120
think of a better place to roll out

127
00:06:29,450 --> 00:06:27,060
NASA's 2021 budget request then right

128
00:06:32,210 --> 00:06:29,460
here where we are assuring in a

129
00:06:34,040 --> 00:06:32,220
civilization changing era of human

130
00:06:36,710 --> 00:06:34,050
spaceflight I want to especially

131
00:06:37,400 --> 00:06:36,720
recognize representative Palazzo who is

132
00:06:40,340 --> 00:06:37,410
with us today

133
00:06:42,170 --> 00:06:40,350
and I'd like to recognize others with us

134
00:06:44,570 --> 00:06:42,180
here today staff from the offices of

135
00:06:47,710 --> 00:06:44,580
Senator wicker senator Hyde Smith and

136
00:06:51,590 --> 00:06:47,720
senator Cassidy and the mayor of Slidell

137
00:06:53,930 --> 00:06:51,600
Mayor Cromer whereas mayor Cromer he

138
00:06:56,630 --> 00:06:53,940

gave me the great the city the the key

139
00:07:00,880 --> 00:06:56,640
to the city here of Slidell and I

140
00:07:03,620 --> 00:07:00,890
haven't used it yet but I intend to so I

141
00:07:06,409 --> 00:07:03,630
just I want to look at this rocket for a

142
00:07:07,670 --> 00:07:06,419
second you just heard the center

143
00:07:11,330 --> 00:07:07,680
director say that we're going to the

144
00:07:14,570 --> 00:07:11,340
moon by 2020 for that rocket in the b2

145
00:07:17,060 --> 00:07:14,580
test and is in fact the moon that is the

146
00:07:19,040 --> 00:07:17,070
SLS rocket store at core stage complete

147
00:07:20,659 --> 00:07:19,050
we're doing the green run right here at

148
00:07:22,520 --> 00:07:20,669
Stennis that's for you representative

149
00:07:24,380 --> 00:07:22,530
Palazzo and we're going to be taking

150
00:07:26,690 --> 00:07:24,390
that rocket to the moon when we launch

151
00:07:35,350 --> 00:07:26,700
Artemis one so thank you all for the

152
00:07:40,400 --> 00:07:38,360
please join me in thanking Rick Gill

153
00:07:42,380 --> 00:07:40,410
brick and his tennis team for making

154
00:07:44,540 --> 00:07:42,390
this amazing event possible thank you

155
00:07:48,070 --> 00:07:44,550
Rick

156
00:07:50,680 --> 00:07:48,080
[Applause]

157
00:07:53,379 --> 00:07:50,690
I would also like to thank Eileen Drake

158
00:07:55,390 --> 00:07:53,389
and everyone at Aerojet Rocketdyne for

159
00:07:58,379 --> 00:07:55,400
allowing us to use their building and

160
00:08:00,909 --> 00:07:58,389
for creating these beautiful displays

161
00:08:04,659 --> 00:08:00,919
including the rl10 in front of me the

162
00:08:14,320 --> 00:08:04,669
rs.25 s behind me Thank You Eileen and

163
00:08:16,930 --> 00:08:14,330

thank you Aerojet Rocketdyne history is

164
00:08:19,890 --> 00:08:16,940
being made here as well as all across

165
00:08:22,360 --> 00:08:19,900
our storied agency our nearly

166
00:08:24,809 --> 00:08:22,370
18-thousand person strong workforce is

167
00:08:27,879 --> 00:08:24,819
developing cutting-edge technology and

168
00:08:30,580 --> 00:08:27,889
expanding our scientific knowledge with

169
00:08:32,380 --> 00:08:30,590
ever greater discoveries from the newest

170
00:08:34,930 --> 00:08:32,390
members of our team to the most senior

171
00:08:37,690 --> 00:08:34,940
your unrelenting determination and

172
00:08:39,969 --> 00:08:37,700
teamwork are what has made NASA ranked

173
00:08:42,360 --> 00:08:39,979
the best place to work in the federal

174
00:08:47,100 --> 00:08:42,370
government for the eighth consecutive

175
00:08:54,880 --> 00:08:51,570
[Applause]

176
00:08:57,610 --> 00:08:54,890
the late nights dogged persistence of

177
00:09:01,030 --> 00:08:57,620
NASA employees is the mold into which

178
00:09:04,330 --> 00:09:01,040
history is poured in no metaphoric terms

179
00:09:07,840 --> 00:09:04,340
we are in truth leading the world into a

180
00:09:09,460 --> 00:09:07,850
new and dynamic era of spaceflight the

181
00:09:12,700 --> 00:09:09,470
nation is proudly behind us in this

182
00:09:14,470 --> 00:09:12,710
endeavor and I am happy to announce but

183
00:09:17,650 --> 00:09:14,480
president Donald Trump's fiscal year

184
00:09:22,080 --> 00:09:17,660
2021 budget requests invests in NASA

185
00:09:31,090 --> 00:09:22,090
more than 25 billion dollars

186
00:09:35,619 --> 00:09:31,100
[Applause]

187
00:09:39,619 --> 00:09:35,629
that's a 12% increase and it includes

188
00:09:47,540 --> 00:09:39,629

3.3 billion dollars for a human landing

189
00:09:54,600 --> 00:09:51,450
this is a 21st century budget worthy of

190
00:09:57,080 --> 00:09:54,610
21st century space exploration and one

191
00:09:59,370 --> 00:09:57,090
of our strongest budgets in NASA history

192
00:10:01,530 --> 00:09:59,380
last week during his State of the Union

193
00:10:03,240 --> 00:10:01,540
address President Trump challenged our

194
00:10:07,200 --> 00:10:03,250
nation to venture farther into space

195
00:10:10,230 --> 00:10:07,210
than ever before quote we must remember

196
00:10:12,900 --> 00:10:10,240
that America has always been a frontier

197
00:10:16,770 --> 00:10:12,910
nation and then he asked Congress to

198
00:10:18,390 --> 00:10:16,780
quote fully fund the Artemis program to

199
00:10:19,860 --> 00:10:18,400
ensure that the next man and the first

200
00:10:23,550 --> 00:10:19,870
woman on the moon will be American

201
00:10:25,920 --> 00:10:23,560
astronauts and he said in fact it said

202
00:10:28,710 --> 00:10:25,930
quote used this as a launching pad to

203
00:10:32,280 --> 00:10:28,720
ensure that America is the first nation

204
00:10:38,559 --> 00:10:32,290
to plant its flag on Mars

205
00:10:41,269 --> 00:10:38,569
[Applause]

206
00:10:42,920 --> 00:10:41,279
if the president's support for NASA

207
00:10:47,179 --> 00:10:42,930
wasn't clear before it should be obvious

208
00:10:49,879 --> 00:10:47,189
now the administration and a bipartisan

209
00:10:52,879 --> 00:10:49,889
coalition in the Congress are committed

210
00:10:55,879 --> 00:10:52,889
to utilizing the great talents of this

211
00:10:57,470 --> 00:10:55,889
agency we call NASA their support for

212
00:11:00,559 --> 00:10:57,480
what we are doing is not empty rhetoric

213
00:11:03,850 --> 00:11:00,569

they are backing up our vision of a

214
00:11:06,139 --> 00:11:03,860
renewed era of discovery by giving NASA

215
00:11:10,160 --> 00:11:06,149
ever-increasing budgets every year and

216
00:11:13,400 --> 00:11:10,170
now we must deliver it is up to us to

217
00:11:15,799 --> 00:11:13,410
deliver it was only ten months ago that

218
00:11:18,079 --> 00:11:15,809
Vice President Mike Pence announced the

219
00:11:20,540 --> 00:11:18,089
president's policy to accelerate the

220
00:11:22,069 --> 00:11:20,550
Artemis programs timeline and land the

221
00:11:26,150 --> 00:11:22,079
first woman in the next man on the moon

222
00:11:28,970 --> 00:11:26,160
by 2024 he instructed all of us to adopt

223
00:11:33,019 --> 00:11:28,980
a spirit of relentless determination and

224
00:11:36,079 --> 00:11:33,029
a renewed sense of focus no one embodies

225
00:11:38,720 --> 00:11:36,089
this more than astronaut Cristina Cooke

226
00:11:40,160 --> 00:11:38,730
who just last week finished her nearly

227
00:11:42,919 --> 00:11:40,170
year-long mission aboard the

228
00:11:46,249 --> 00:11:42,929
International Space Station during her

229
00:11:47,840 --> 00:11:46,259
rookie mission she broke records for the

230
00:11:51,679 --> 00:11:47,850
longest single space flight by a woman

231
00:11:55,220 --> 00:11:51,689
and ventured outside the station on six

232
00:11:58,280 --> 00:11:55,230
different spacewalks including not just

233
00:12:00,919 --> 00:11:58,290
the first one but the first three all

234
00:12:02,070 --> 00:12:00,929
woman extra vehicular activities in

235
00:12:08,960 --> 00:12:02,080
history

236
00:12:12,060 --> 00:12:08,970
[Applause]

237
00:12:15,390 --> 00:12:12,070
like Cristina the Artemis programs

238
00:12:18,000 --> 00:12:15,400

bolded bold vision must be matched by

239
00:12:20,910 --> 00:12:18,010
our unflinching devotion to what is

240
00:12:23,030 --> 00:12:20,920
necessary to advance the nation farther

241
00:12:25,710 --> 00:12:23,040
and faster than ever before

242
00:12:27,840 --> 00:12:25,720
nowhere has this been more apparent than

243
00:12:30,350 --> 00:12:27,850
the progress made on the Space Launch

244
00:12:35,460 --> 00:12:30,360
System rocket and the Orion crew capsule

245
00:12:39,420 --> 00:12:35,470
the 2021 budget and Marshall and me Shu

246
00:12:40,829 --> 00:12:39,430
and Kennedy and Johnson they should all

247
00:12:42,000 --> 00:12:40,839
be happy everybody at NASA should be

248
00:12:45,690 --> 00:12:42,010
happy this is important

249
00:12:47,010 --> 00:12:45,700
the 2021 budget fully funds SLS and

250
00:13:00,710 --> 00:12:47,020
Orion

251
00:13:04,220 --> 00:13:00,720
we've built for deep-space missions in

252
00:13:06,410 --> 00:13:04,230
over a generation last year engineers

253
00:13:08,690 --> 00:13:06,420
engineers fully assembled the Orion

254
00:13:11,120 --> 00:13:08,700
spacecraft in preparation for the

255
00:13:13,850 --> 00:13:11,130
Artemis one mission and are now halfway

256
00:13:17,330 --> 00:13:13,860
through the final testing at crumble

257
00:13:20,030 --> 00:13:17,340
explained Brook station in Ohio after

258
00:13:21,650 --> 00:13:20,040
final testing is complete the Orion will

259
00:13:25,130 --> 00:13:21,660
be returned to the Kennedy Space Center

260
00:13:27,920 --> 00:13:25,140
and be be stacked atop the Space Launch

261
00:13:32,270 --> 00:13:27,930
System in preparation for the Artemis

262
00:13:34,610 --> 00:13:32,280
one mission let's talk about SLS the

263
00:13:37,220 --> 00:13:34,620

Space Launch System rocket is the

264
00:13:39,140 --> 00:13:37,230
foundation of our 21st century space

265
00:13:42,380 --> 00:13:39,150
exploration missions to the moon and to

266
00:13:44,180 --> 00:13:42,390
Mars it's unprecedented power and

267
00:13:47,510 --> 00:13:44,190
capabilities will send American

268
00:13:50,090 --> 00:13:47,520
astronauts farther than ever before just

269
00:13:51,650 --> 00:13:50,100
a few months ago engineers completed

270
00:13:55,160 --> 00:13:51,660
assembling the core stage and

271
00:13:57,260 --> 00:13:55,170
integrating the four rs.25 engines in

272
00:14:00,080 --> 00:13:57,270
fact the rs.25 engines behind me and

273
00:14:02,810 --> 00:14:00,090
right here at Stennis Space Center we

274
00:14:05,690 --> 00:14:02,820
will conduct the green run test for the

275
00:14:13,480 --> 00:14:05,700
SLS that's for you congressman Plaza

276
00:14:15,920 --> 00:14:13,490
[Applause]

277
00:14:17,570 --> 00:14:15,930
congressman Palazzo stuck around just

278
00:14:18,860 --> 00:14:17,580
he's got to get to the airport to help

279
00:14:20,450 --> 00:14:18,870
us with our funding but he stuck around

280
00:14:23,480 --> 00:14:20,460
just to hear me say that line just so

281
00:14:24,590 --> 00:14:23,490
everybody's aware I said it twice he

282
00:14:27,050 --> 00:14:24,600
just gave me yeah you said it twice

283
00:14:28,850 --> 00:14:27,060
that's good this is a two hundred and

284
00:14:30,680 --> 00:14:28,860
twelve foot tall course stage

285
00:14:32,420 --> 00:14:30,690
it's the largest rocket ever built by

286
00:14:35,480 --> 00:14:32,430
the agency and a monumental engineering

287
00:14:37,370 --> 00:14:35,490
feat in its own right it is a testament

288
00:14:40,579 --> 00:14:37,380

to American enterprise and ingenuity

289
00:14:43,240 --> 00:14:40,589
with more than a thousand large and

290
00:14:45,650 --> 00:14:43,250
small businesses in 44 states

291
00:14:48,430 --> 00:14:45,660
contributing to the design and the

292
00:14:52,330 --> 00:14:48,440
assembly the SLS rocket is in fact

293
00:14:59,360 --> 00:14:56,389
[Applause]

294
00:15:05,299 --> 00:14:59,370
let's go out to the b2 test stand here

295
00:15:08,210 --> 00:15:05,309
it's Dennis thanks sir I'm astronaut

296
00:15:09,739 --> 00:15:08,220
Roger Chari hi I'm dawn Davis and like

297
00:15:11,840 --> 00:15:09,749
you said we're standing here at Stennis

298
00:15:13,639 --> 00:15:11,850
Space Center in front of the b2 stand

299
00:15:15,019 --> 00:15:13,649
and just like there's a lot of history

300
00:15:17,030 --> 00:15:15,029
and heritage there at Aerojet Rocketdyne

301
00:15:18,679 --> 00:15:17,040
where you guys are at there's a whole

302
00:15:20,900 --> 00:15:18,689
bunch of history and heritage here at

303
00:15:22,850 --> 00:15:20,910
Stennis but specifically this b2 test

304
00:15:25,040 --> 00:15:22,860
stand right now we have loaded up the

305
00:15:27,230 --> 00:15:25,050
SLS core stage which is going to launch

306
00:15:28,999 --> 00:15:27,240
the Artemis one mission on the unmanned

307
00:15:30,439 --> 00:15:29,009
test but before that they're going to do

308
00:15:32,840 --> 00:15:30,449
a green run was like you mentioned

309
00:15:35,090 --> 00:15:32,850
safety and reliability is key as we take

310
00:15:37,249 --> 00:15:35,100
on the challenges that await us as we go

311
00:15:39,499 --> 00:15:37,259
back to the moon and beyond and the SLS

312
00:15:41,059 --> 00:15:39,509
is key because unlike the saturn v in

313
00:15:42,259 --> 00:15:41,069

apollo we're going back to the moon to

314
00:15:44,150 --> 00:15:42,269
stay this time and to build a

315
00:15:46,730 --> 00:15:44,160
sustainable presence at the moon and

316
00:15:48,259 --> 00:15:46,740
mars eventually not only are we going

317
00:15:49,790 --> 00:15:48,269
back to the moon though but this year is

318
00:15:51,499 --> 00:15:49,800
super exciting in the astronaut office

319
00:15:52,460 --> 00:15:51,509
because there's three new vehicles and

320
00:15:54,199 --> 00:15:52,470
development all at the same time

321
00:15:56,869 --> 00:15:54,209
something that's never happened in the

322
00:15:58,579 --> 00:15:56,879
agency so besides SLS we're also working

323
00:16:00,650 --> 00:15:58,589
with our commercial partners at SpaceX

324
00:16:02,210 --> 00:16:00,660
and Boeing to launch Americans from US

325
00:16:04,549 --> 00:16:02,220
soil back to the space station this year

326
00:16:06,679 --> 00:16:04,559
and as you mentioned Christina cook just

327
00:16:08,840 --> 00:16:06,689
coming back a great testament to

328
00:16:10,400 --> 00:16:08,850
overcoming the challenges of space just

329
00:16:12,199 --> 00:16:10,410
like the engineers and scientists here

330
00:16:14,360 --> 00:16:12,209
at NASA being overcoming the challenges

331
00:16:16,369 --> 00:16:14,370
that await us as we move forward so it's

332
00:16:17,809 --> 00:16:16,379
great exciting to see the budget rollout

333
00:16:20,239 --> 00:16:17,819
and to know we have the support of the

334
00:16:22,400 --> 00:16:20,249
country and bipartisan support as we

335
00:16:23,720 --> 00:16:22,410
endeavor to take on these challenges but

336
00:16:26,030 --> 00:16:23,730
in the near term we're gonna have to

337
00:16:27,799 --> 00:16:26,040
launch this rocket and to do that we

338
00:16:29,749 --> 00:16:27,809

have a green run test coming up so here

339
00:16:31,759 --> 00:16:29,759
to talk about that as dawn Davis so

340
00:16:33,139 --> 00:16:31,769
right Roger exciting times for NASA but

341
00:16:35,809 --> 00:16:33,149
especially here at Stennis Space Center

342
00:16:37,939 --> 00:16:35,819
at the SLS core stage research right now

343
00:16:40,249 --> 00:16:37,949
on our historic beetle test and in

344
00:16:41,929 --> 00:16:40,259
preparation for green run testing so the

345
00:16:44,239 --> 00:16:41,939
green run testing provides us the first

346
00:16:46,069 --> 00:16:44,249
opportunity to do integrated testing of

347
00:16:48,230 --> 00:16:46,079
the core stage components starting with

348
00:16:50,030 --> 00:16:48,240
individual testing and actually

349
00:16:52,369 --> 00:16:50,040
culminating with the firing of all four

350
00:16:54,169 --> 00:16:52,379
rs.25 engines generating over two

351
00:16:55,850 --> 00:16:54,179
million pounds of thrust just like you

352
00:16:57,739 --> 00:16:55,860
would have don't launch so exciting

353
00:16:59,660 --> 00:16:57,749
times again as we prepare for our boys

354
00:17:01,999 --> 00:16:59,670
back to the moon I can tell you in the

355
00:17:03,439 --> 00:17:02,009
astronaut office there's quite a bit of

356
00:17:05,059 --> 00:17:03,449
competition going on to see who's gonna

357
00:17:06,829 --> 00:17:05,069
get to be able to sit in the front row

358
00:17:09,360 --> 00:17:06,839
of this test a few hundred feet away and

359
00:17:10,559 --> 00:17:09,370
watch this impressive feat and impress

360
00:17:12,689 --> 00:17:10,569
of test when all four of those things

361
00:17:15,030 --> 00:17:12,699
fire off at the same time so very

362
00:17:17,010 --> 00:17:15,040
excited to be here and so excited to be

363
00:17:18,360 --> 00:17:17,020

a part of this amazing year and have a

364
00:17:20,340 --> 00:17:18,370
graduate astronaut candidate training

365
00:17:21,750 --> 00:17:20,350
and to be now part of the team that's

366
00:17:25,050 --> 00:17:21,760
going to go back to the moon and beyond

367
00:17:30,000 --> 00:17:25,060
back to you sir now

368
00:17:36,990 --> 00:17:34,500
in full disclosure Raja Chari and Don

369
00:17:38,520 --> 00:17:37,000
Davis are not actually at the b2 test

370
00:17:40,140 --> 00:17:38,530
stand there in the room right now would

371
00:17:41,830 --> 00:17:40,150
you two please stand up so he can give

372
00:17:50,190 --> 00:17:41,840
you some applause

373
00:17:53,530 --> 00:17:50,200
[Applause]

374
00:17:55,810 --> 00:17:53,540
after the green run the next time this

375
00:17:58,030 --> 00:17:55,820
course stage will roar to life will be

376
00:18:00,070 --> 00:17:58,040
on the launch pad at Kennedy for the

377
00:18:03,789 --> 00:18:00,080
Artemis one mission to the moon

378
00:18:05,680 --> 00:18:03,799
after Artemis won these rs.25 engines

379
00:18:07,480 --> 00:18:05,690
behind me will launch American

380
00:18:10,600 --> 00:18:07,490
astronauts to the moon for the first

381
00:18:14,919 --> 00:18:10,610
time since Apollo on Artemis 2 and

382
00:18:17,140 --> 00:18:14,929
Artemis 3 now that's Artemis - that's an

383
00:18:21,039 --> 00:18:17,150
Artemis - engine one of 4 for Artemis -

384
00:18:22,350 --> 00:18:21,049
and that's one of four for Artemis 3 and

385
00:18:24,520 --> 00:18:22,360
I want to make sure that we thank

386
00:18:27,190 --> 00:18:24,530
Aerojet Rocketdyne for their amazing

387
00:18:28,600 --> 00:18:27,200
work to put these engines on order and

388
00:18:30,789 --> 00:18:28,610

get them complete so that we can get

389
00:18:32,370 --> 00:18:30,799
this rocket launched Thank You Aerojet

390
00:18:39,710 --> 00:18:32,380
Rocketdyne

391
00:18:42,419 --> 00:18:39,720
[Applause]

392
00:18:44,580 --> 00:18:42,429
another pair of components vitally

393
00:18:47,310 --> 00:18:44,590
important to the Artemis program and our

394
00:18:49,460 --> 00:18:47,320
eventual missions to Mars are the human

395
00:18:52,110 --> 00:18:49,470
landing system and the gateway the

396
00:18:54,149 --> 00:18:52,120
president's 2021 budget supports these

397
00:18:56,129 --> 00:18:54,159
critical elements of the art of Artemis

398
00:18:58,379 --> 00:18:56,139
architecture that will enable us to

399
00:19:01,560 --> 00:18:58,389
explore the moon in a way that's never

400
00:19:04,830 --> 00:19:01,570
been done before like Gateway or the

401
00:19:07,110 --> 00:19:04,840
Gateway or as sometimes I call it the

402
00:19:09,570 --> 00:19:07,120
Gateway to Mars is the civilization

403
00:19:11,669 --> 00:19:09,580
changing technology that will propel us

404
00:19:14,580 --> 00:19:11,679
to Mars for the first time in human

405
00:19:16,769 --> 00:19:14,590
history constructing this space vehicle

406
00:19:19,049 --> 00:19:16,779
in orbit around the moon will help us

407
00:19:21,180 --> 00:19:19,059
prove the technology we need for an

408
00:19:21,840 --> 00:19:21,190
eventual crewed mission to the Red

409
00:19:24,210 --> 00:19:21,850
Planet

410
00:19:25,799 --> 00:19:24,220
NASA's science Mission Directorate and

411
00:19:28,710 --> 00:19:25,809
NASA's human exploration and operations

412
00:19:31,080 --> 00:19:28,720
mission directorate will need to work

413
00:19:33,930 --> 00:19:31,090

together like never before to make this

414
00:19:36,389 --> 00:19:33,940
a reality parts of our gateway to Mars

415
00:19:39,570 --> 00:19:36,399
are already under development and the

416
00:19:42,539 --> 00:19:39,580
2021 budget will allow us to start

417
00:19:45,029 --> 00:19:42,549
construction on the others prototype

418
00:19:47,100 --> 00:19:45,039
thrusters that take advantage of solar

419
00:19:48,419 --> 00:19:47,110
electric propulsion developed by nasa's

420
00:19:51,180 --> 00:19:48,429
space technology mission directorate

421
00:19:53,430 --> 00:19:51,190
were completed and have now been

422
00:19:54,440 --> 00:19:53,440
delivered by commercial partners last

423
00:19:57,560 --> 00:19:54,450
year

424
00:20:03,350 --> 00:19:57,570
thank you again Aerojet Rocketdyne

425
00:20:05,790 --> 00:20:03,360
[Applause]

426
00:20:07,500 --> 00:20:05,800
the human landing system is another

427
00:20:09,690 --> 00:20:07,510
critical element of the Artemis

428
00:20:13,830 --> 00:20:09,700
architecture one of the most noteworthy

429
00:20:14,520 --> 00:20:13,840
features of the 2021 fiscal budget this

430
00:20:16,680 --> 00:20:14,530
is crazy

431
00:20:20,160 --> 00:20:16,690
one of the most noteworthy features of

432
00:20:22,470 --> 00:20:20,170
the 2021 fiscal budget is that 3.3

433
00:20:24,480 --> 00:20:22,480
billion dollars President Trump has

434
00:20:28,050 --> 00:20:24,490
directed for development of the human

435
00:20:30,270 --> 00:20:28,060
landing system 2020 marked the first

436
00:20:32,250 --> 00:20:30,280
time we've had direct funding for a

437
00:20:35,190 --> 00:20:32,260
human landing system since the Apollo

438
00:20:37,530 --> 00:20:35,200

program the human landing system or HLS

439
00:20:39,930 --> 00:20:37,540
will be used to ferry American

440
00:20:43,800 --> 00:20:39,940
astronauts between the lunar surface and

441
00:20:46,020 --> 00:20:43,810
the Gateway last year our agency's HLS

442
00:20:48,060 --> 00:20:46,030
team went above and beyond the call of

443
00:20:51,420 --> 00:20:48,070
duty in response to the vice president's

444
00:20:54,030 --> 00:20:51,430
2024 announcement in record time they

445
00:20:56,990 --> 00:20:54,040
executed the first step in calling for

446
00:20:59,850 --> 00:20:57,000
industry proposals for an entirely new

447
00:21:02,340 --> 00:20:59,860
multi-billion dollar program what would

448
00:21:04,740 --> 00:21:02,350
normally have taken NASA two years was

449
00:21:08,580 --> 00:21:04,750
accomplished in roughly six months

450
00:21:10,970 --> 00:21:08,590
NASA is serious about meeting our 2024

451
00:21:13,650 --> 00:21:10,980
goal and this team's excellent work

452
00:21:14,490 --> 00:21:13,660
demonstrates our desire to get the

453
00:21:17,210 --> 00:21:14,500
mission right

454
00:21:19,680 --> 00:21:17,220
the HLS team is currently hard at work

455
00:21:21,990 --> 00:21:19,690
evaluating several proposals received

456
00:21:24,540 --> 00:21:22,000
from industry and is preparing to make

457
00:21:31,030 --> 00:21:24,550
final Awards in the coming months

458
00:21:37,270 --> 00:21:33,840
[Applause]

459
00:21:39,630 --> 00:21:37,280
let's talk about a a milestone long

460
00:21:41,740 --> 00:21:39,640
sought after that we will soon achieve

461
00:21:44,529 --> 00:21:41,750
returning human spaceflight to the

462
00:21:45,970 --> 00:21:44,539
United States of America this year we

463
00:21:48,820 --> 00:21:45,980

will once again launch American

464
00:21:50,890 --> 00:21:48,830
astronauts on American Rockets from

465
00:21:53,820 --> 00:21:50,900
American soil for the first time in

466
00:22:00,880 --> 00:21:58,510
[Applause]

467
00:22:03,460 --> 00:22:00,890
the emerging market in low-earth orbit

468
00:22:06,370 --> 00:22:03,470
where NASA is one customer among many is

469
00:22:09,370 --> 00:22:06,380
revolutionizing our ability to do more

470
00:22:12,190 --> 00:22:09,380
science more exploration and more

471
00:22:14,950 --> 00:22:12,200
technology development than ever before

472
00:22:17,200 --> 00:22:14,960
although our ultimate goal is far beyond

473
00:22:19,960 --> 00:22:17,210
low-earth orbit what we do there is

474
00:22:22,480 --> 00:22:19,970
vital to exploration the President's

475
00:22:25,299 --> 00:22:22,490
budget fully supports the International

476
00:22:28,240 --> 00:22:25,309
Space Station's missions to learn about

477
00:22:30,669 --> 00:22:28,250
human health in microgravity demonstrate

478
00:22:33,669 --> 00:22:30,679
cutting-edge technology and perform

479
00:22:35,350 --> 00:22:33,679
trailblazing science the ISS is one of

480
00:22:37,990 --> 00:22:35,360
the most ambitious international

481
00:22:40,090 --> 00:22:38,000
collaborations ever even attempted the

482
00:22:43,270 --> 00:22:40,100
relationships we have developed with the

483
00:22:45,850 --> 00:22:43,280
European Japanese Russian and Canadian

484
00:22:49,570 --> 00:22:45,860
Space Agency's and all of the others are

485
00:22:53,470 --> 00:22:49,580
absolutely invaluable to NASA and this

486
00:22:55,870 --> 00:22:53,480
year this year we mark 20 years of

487
00:22:57,320 --> 00:22:55,880
continuous human presence aboard the

488
00:23:04,640 --> 00:22:57,330

International Space Station

489
00:23:08,060 --> 00:23:04,650
[Applause]

490
00:23:12,049 --> 00:23:08,070
I was speaking to a group of students at

491
00:23:14,150 --> 00:23:12,059
a university just last week and and I

492
00:23:16,760 --> 00:23:14,160
dawned on me that half of the people in

493
00:23:19,610 --> 00:23:16,770
the audience 1819

494
00:23:21,680 --> 00:23:19,620
even 20 years old were they've never

495
00:23:23,450 --> 00:23:21,690
lived a day of their lives when there

496
00:23:26,030 --> 00:23:23,460
weren't people living and working in

497
00:23:27,410 --> 00:23:26,040
space that is a monumental achievement

498
00:23:29,870 --> 00:23:27,420
not just for the United States of

499
00:23:31,670 --> 00:23:29,880
America but for the entire coalition of

500
00:23:34,130 --> 00:23:31,680
nations that we lead on the

501
00:23:36,500 --> 00:23:34,140
International Space Station as we plan

502
00:23:38,960 --> 00:23:36,510
to go forward to the moon sustainably we

503
00:23:41,480 --> 00:23:38,970
want to bring the American aerospace

504
00:23:43,669 --> 00:23:41,490
industry with us through a program that

505
00:23:48,200 --> 00:23:43,679
we call the commercial lunar payload

506
00:23:50,419 --> 00:23:48,210
services initiative clipz clipz is fully

507
00:23:52,760 --> 00:23:50,429
supported by the 2021 budget and will

508
00:23:56,090 --> 00:23:52,770
utilize the capabilities of American

509
00:23:58,450 --> 00:23:56,100
industry to deliver 16 NASA Science and

510
00:24:01,880 --> 00:23:58,460
Technology payloads to the lunar surface

511
00:24:04,610 --> 00:24:01,890
starting next year that means next year

512
00:24:06,790 --> 00:24:04,620
we are putting payloads on the surface

513
00:24:08,400 --> 00:24:06,800

of the moon for the first time since

514
00:24:14,800 --> 00:24:08,410
1972

515
00:24:16,870 --> 00:24:14,810
[Applause]

516
00:24:18,880 --> 00:24:16,880
let's go out to the Goddard Space Flight

517
00:24:22,900 --> 00:24:18,890
Center and get an update on some of

518
00:24:24,640 --> 00:24:22,910
these clips missions hi I'm Noah Petro

519
00:24:26,470 --> 00:24:24,650
at NASA's Goddard Space Flight Center in

520
00:24:27,430 --> 00:24:26,480
Greenbelt Maryland on the project

521
00:24:29,890 --> 00:24:27,440
scientists on the Lunar Reconnaissance

522
00:24:31,420 --> 00:24:29,900
Orbiter an incredible spacecraft that

523
00:24:33,970 --> 00:24:31,430
we've had orbiting the moon now for over

524
00:24:35,560 --> 00:24:33,980
ten years creating the most amazing data

525
00:24:38,410 --> 00:24:35,570
set for our nearest neighbor in space

526
00:24:40,030 --> 00:24:38,420
the moon now as part of the Artemis

527
00:24:41,800 --> 00:24:40,040
program NASA is working with multiple

528
00:24:44,020 --> 00:24:41,810
American companies to deliver new

529
00:24:45,910 --> 00:24:44,030
science to the lunar surface we call it

530
00:24:47,890 --> 00:24:45,920
the commercial lunar payload services or

531
00:24:49,900 --> 00:24:47,900
clips we've identified more than two

532
00:24:52,420 --> 00:24:49,910
dozen experiments to send to the surface

533
00:24:54,160 --> 00:24:52,430
with these small Landers first 16

534
00:24:55,990 --> 00:24:54,170
experiments are set to launch next year

535
00:24:58,060 --> 00:24:56,000
and 5 of the experiments are being built

536
00:24:59,620 --> 00:24:58,070
right here at Goddard with those

537
00:25:01,090 --> 00:24:59,630
experiments we'll be able to learn about

538
00:25:03,220 --> 00:25:01,100

the composition of the surface of the

539
00:25:05,230 --> 00:25:03,230
Moon the dynamics of the interaction of

540
00:25:07,150 --> 00:25:05,240
the moon with the Sun and the presence

541
00:25:10,030 --> 00:25:07,160
and distribution of volatile zhh on the

542
00:25:12,130 --> 00:25:10,040
lunar surface now right here I have a

543
00:25:14,260 --> 00:25:12,140
very small experiment it's called the

544
00:25:16,870 --> 00:25:14,270
lunar retroreflector array it's a small

545
00:25:19,090 --> 00:25:16,880
set of eight mirrors this experiment

546
00:25:21,070 --> 00:25:19,100
will be mounted to the top of a lander

547
00:25:22,240 --> 00:25:21,080
and so when it's sitting on the surface

548
00:25:23,890 --> 00:25:22,250
we'll be able to shoot laser beams

549
00:25:25,990 --> 00:25:23,900
whether we're shooting laser beams from

550
00:25:29,050 --> 00:25:26,000
a spacecraft orbiting overhead or a

551
00:25:30,520 --> 00:25:29,060
rover this laser beams and the

552
00:25:32,260 --> 00:25:30,530
interaction with this these sets of

553
00:25:34,030 --> 00:25:32,270
mirrors will tell us exactly where the

554
00:25:36,250 --> 00:25:34,040
lander isn't on the surface of the moon

555
00:25:38,500 --> 00:25:36,260
it'll act as sort of a beacon that one

556
00:25:39,970 --> 00:25:38,510
point will tell us exactly about where

557
00:25:41,830 --> 00:25:39,980
it is in space and if we make those

558
00:25:43,360 --> 00:25:41,840
measurements repeatedly we'll understand

559
00:25:44,170 --> 00:25:43,370
how that point is moving in space and

560
00:25:45,700 --> 00:25:44,180
that can tell us something about the

561
00:25:46,960 --> 00:25:45,710
interior of the moon this is a very

562
00:25:49,810 --> 00:25:46,970
exciting opportunity from this

563
00:25:51,940 --> 00:25:49,820

incredibly small package now I'm very

564
00:25:53,620 --> 00:25:51,950
happy to send you over to my colleague

565
00:25:55,840 --> 00:25:53,630
Mehdi Benna as we talk about his

566
00:25:58,120 --> 00:25:55,850
experiment called seal thanks as you can

567
00:26:00,880 --> 00:25:58,130
see we are here in one of NASA's Goddard

568
00:26:03,550 --> 00:26:00,890
clearings where we are finishing the

569
00:26:05,560 --> 00:26:03,560
integration of the same instrument seald

570
00:26:07,920 --> 00:26:05,570
stands for the surface and exosphere

571
00:26:11,680 --> 00:26:07,930
alterations by landers this instrument

572
00:26:14,320 --> 00:26:11,690
will be a test of measuring how the

573
00:26:18,130 --> 00:26:14,330
tenuous environment of the moon is

574
00:26:20,500 --> 00:26:18,140
altered by the exhaust plumes of the

575
00:26:23,260 --> 00:26:20,510
lander this will allow scientists to

576
00:26:26,620 --> 00:26:23,270
gain more insight in how future

577
00:26:28,150 --> 00:26:26,630
spacecraft landing may affect soil

578
00:26:30,760 --> 00:26:28,160
samples that are

579
00:26:32,740 --> 00:26:30,770
than in the vicinity so that's so one of

580
00:26:35,140 --> 00:26:32,750
the things we have gone on a Goddard

581
00:26:38,890 --> 00:26:35,150
we're very excited of being part of

582
00:26:41,090 --> 00:26:38,900
NASA's journey back to the moon all

583
00:26:46,170 --> 00:26:41,100
right

584
00:26:50,470 --> 00:26:48,970
we'll issue two more task orders this

585
00:26:54,670 --> 00:26:50,480
year for deliveries to the lunar surface

586
00:26:57,160 --> 00:26:54,680
in 2022 and to each each year thereafter

587
00:27:00,370 --> 00:26:57,170
including one delivery for the Viper

588
00:27:04,600 --> 00:27:00,380

Rover to search for polar ice as early

589
00:27:06,430 --> 00:27:04,610
as December of 2022 all right let's talk

590
00:27:09,460 --> 00:27:06,440
about science and Aeronautics and

591
00:27:11,950 --> 00:27:09,470
technology the 2021 budget strongly

592
00:27:14,830 --> 00:27:11,960
supports NASA's full suite of science

593
00:27:16,960 --> 00:27:14,840
Aeronautics and Technology work the

594
00:27:19,990 --> 00:27:16,970
President's budget is committed to an

595
00:27:22,510 --> 00:27:20,000
all of NASA approach in order to best

596
00:27:25,210 --> 00:27:22,520
move us into the next era of science and

597
00:27:28,090 --> 00:27:25,220
discovery this includes supporting the

598
00:27:30,160 --> 00:27:28,100
decadal survey priorities identified by

599
00:27:32,650 --> 00:27:30,170
the science community including

600
00:27:35,770 --> 00:27:32,660
history's first Mars sample return

601
00:27:38,070 --> 00:27:35,780
mission the Europa clipper and more

602
00:27:41,380 --> 00:27:38,080
advanced Earth observation missions

603
00:27:44,230 --> 00:27:41,390
yesterday we successfully launched solar

604
00:27:46,490 --> 00:27:44,240
orbiter from Cape Canaveral go solar

605
00:27:50,500 --> 00:27:46,500
orbiter

606
00:27:53,180 --> 00:27:50,510
[Applause]

607
00:27:55,520 --> 00:27:53,190
this cooperative mission between the

608
00:27:57,950 --> 00:27:55,530
European Space Agency and NASA will

609
00:28:01,160 --> 00:27:57,960
conduct trailblazing science in Helio

610
00:28:04,520 --> 00:28:01,170
physics and give us our first images of

611
00:28:07,720 --> 00:28:04,530
the sun's poles this budget also funds

612
00:28:10,100 --> 00:28:07,730
over 40 innovative science missions

613
00:28:12,470 --> 00:28:10,110

accelerating our opportunities to do

614
00:28:15,080 --> 00:28:12,480
state-of-the-art science on the deepest

615
00:28:18,530 --> 00:28:15,090
parts of the universe as well as right

616
00:28:21,680 --> 00:28:18,540
here on earth we are preparing to launch

617
00:28:25,070 --> 00:28:21,690
the long-anticipated James Webb Space

618
00:28:27,620 --> 00:28:25,080
Telescope in 2021 and this budget gives

619
00:28:29,870 --> 00:28:27,630
us the funds to do just that this

620
00:28:31,970 --> 00:28:29,880
premier Observatory will serve thousands

621
00:28:35,240 --> 00:28:31,980
of astronomers as they seek to better

622
00:28:38,090 --> 00:28:35,250
understand the universe I'm gonna anchor

623
00:28:40,910 --> 00:28:38,100
here for a second think about this when

624
00:28:43,340 --> 00:28:40,920
we talk about the James Webb Space

625
00:28:45,680 --> 00:28:43,350
Telescope we're talking about a

626
00:28:49,070 --> 00:28:45,690
telescope that will be somewhere around

627
00:28:51,380 --> 00:28:49,080
10 degrees Kelvin almost absolute zero

628
00:28:53,510 --> 00:28:51,390
and temperature it is going to see for

629
00:28:56,300 --> 00:28:53,520
the first time in human history the

630
00:28:58,430 --> 00:28:56,310
first light in the universe it will be

631
00:28:59,660 --> 00:28:58,440
an infrared it won't be in light but

632
00:29:02,120 --> 00:28:59,670
that's because as the universe has

633
00:29:04,490 --> 00:29:02,130
expanded it has gone from light waves to

634
00:29:06,560 --> 00:29:04,500
now infrared that is going to be an

635
00:29:08,120 --> 00:29:06,570
absolute stunning moment not just in the

636
00:29:11,000 --> 00:29:08,130
history of the United States of America

637
00:29:13,360 --> 00:29:11,010
but a stunning moment for our nation and

638
00:29:15,800 --> 00:29:13,370

for the world and it will forever add

639
00:29:19,730 --> 00:29:15,810
chapters to science books and history

640
00:29:21,230 --> 00:29:19,740
books closer to earth the 2021 budget

641
00:29:22,910 --> 00:29:21,240
supports a robust fleet of

642
00:29:26,380 --> 00:29:22,920
next-generation Earth Observatory

643
00:29:31,030 --> 00:29:26,390
missions including launches of Landsat 9

644
00:29:34,100 --> 00:29:31,040
swat and Sentinel 6 a Mike Freilich

645
00:29:36,740 --> 00:29:34,110
Sentinel 6 a Mike Freilich was recently

646
00:29:38,930 --> 00:29:36,750
renamed after NASA's longtime earth

647
00:29:40,550 --> 00:29:38,940
science director I would like everybody

648
00:29:42,410 --> 00:29:40,560
to give a round of applause to mike

649
00:29:45,730 --> 00:29:42,420
Freilich and everything he has done for

650
00:29:52,030 --> 00:29:45,740
nasa earth science

651
00:29:55,850 --> 00:29:52,040
[Applause]

652
00:29:57,740 --> 00:29:55,860
technology drives exploration technology

653
00:29:59,390 --> 00:29:57,750
drives exploration and technology

654
00:30:01,820 --> 00:29:59,400
development in the coming years will be

655
00:30:04,370 --> 00:30:01,830
essential for exploring the moon and

656
00:30:07,220 --> 00:30:04,380
preparing crews for long-term missions

657
00:30:10,010 --> 00:30:07,230
on Mars this budget includes more than

658
00:30:12,740 --> 00:30:10,020
1.5 billion dollars for exploration

659
00:30:16,070 --> 00:30:12,750
technology in support of the Artemis

660
00:30:19,460 --> 00:30:16,080
program some examples include turning

661
00:30:22,310 --> 00:30:19,470
space waste into useful gases for

662
00:30:25,130 --> 00:30:22,320
long-duration missions and using nuclear

663
00:30:28,730 --> 00:30:25,140

propulsion to accelerate our plot our

664
00:30:31,100 --> 00:30:28,740
path to the red planet the 2021 budget

665
00:30:33,860 --> 00:30:31,110
also strongly supports planetary science

666
00:30:35,690 --> 00:30:33,870
including providing funds to study the

667
00:30:39,200 --> 00:30:35,700
celestial bodies around us like never

668
00:30:41,720 --> 00:30:39,210
before the Mars 2020 Rover is a very

669
00:30:44,600 --> 00:30:41,730
exciting mission that I anticipate also

670
00:30:46,190 --> 00:30:44,610
will rewrite textbooks this summer we

671
00:30:48,919 --> 00:30:46,200
will launch this Rover as part of our

672
00:30:50,960 --> 00:30:48,929
next-generation robotic explorations

673
00:30:53,150 --> 00:30:50,970
this mission will not only look for

674
00:30:55,549 --> 00:30:53,160
signs of habitable conditions on Mars in

675
00:30:58,570 --> 00:30:55,559
the ancient past but also search for

676
00:31:02,270 --> 00:30:58,580
signs of past microbial life itself and

677
00:31:05,030 --> 00:31:02,280
include and I love this part and include

678
00:31:07,170 --> 00:31:05,040
the first-ever helicopter to fly on

679
00:31:13,089 --> 00:31:07,180
another world

680
00:31:16,129 --> 00:31:13,099
[Applause]

681
00:31:18,049 --> 00:31:16,139
Mars 2020 will also test methods for

682
00:31:19,789 --> 00:31:18,059
producing oxygen from the Martian

683
00:31:22,699 --> 00:31:19,799
atmosphere for the first time and

684
00:31:24,589 --> 00:31:22,709
identify resources on the surface that

685
00:31:27,499 --> 00:31:24,599
could support our future astronauts

686
00:31:30,379 --> 00:31:27,509
long-term missions furthermore the Mars

687
00:31:33,799 --> 00:31:30,389
2020 Rover will initiate a long sought

688
00:31:36,949 --> 00:31:33,809

after mission of returning Martian rocks

689
00:31:39,769 --> 00:31:36,959
and soil to the earth for further study

690
00:31:43,269 --> 00:31:39,779
let's go to NASA's Jet Propulsion lab to

691
00:31:46,609 --> 00:31:43,279
hear more about this pioneering mission

692
00:31:48,919 --> 00:31:46,619
hi I'm Raquel via Nueva here at NASA's

693
00:31:51,619 --> 00:31:48,929
Jet Propulsion Laboratory now it's been

694
00:31:54,019 --> 00:31:51,629
a dream of scientists for generations to

695
00:31:56,479 --> 00:31:54,029
bring back samples from the surface of

696
00:31:58,639 --> 00:31:56,489
Mars and right now the Mars 2020 Rover

697
00:32:00,799 --> 00:31:58,649
mission is laying the groundwork and

698
00:32:02,839 --> 00:32:00,809
that's why I'm in the Institute

699
00:32:05,299 --> 00:32:02,849
instrument laboratory with Jessica

700
00:32:07,789 --> 00:32:05,309
Samuels and she's here to tell us what's

701
00:32:10,939 --> 00:32:07,799
going on here well we use this facility

702
00:32:12,559 --> 00:32:10,949
to develop and design our hardware and

703
00:32:14,809 --> 00:32:12,569
software systems for our Mars mission

704
00:32:17,629 --> 00:32:14,819
and how does the sampling system work so

705
00:32:20,449 --> 00:32:17,639
we have a drill on the end of our

706
00:32:22,069 --> 00:32:20,459
robotic arm and as we are drilling the

707
00:32:25,009 --> 00:32:22,079
surface of Mars and we'll be collecting

708
00:32:27,349 --> 00:32:25,019
pieces of Mars into the sample tube at

709
00:32:29,959 --> 00:32:27,359
that time we'll then transfer that

710
00:32:32,809 --> 00:32:29,969
sample tube into the inside of the rover

711
00:32:34,969 --> 00:32:32,819
and then seal it for storage as we

712
00:32:37,069 --> 00:32:34,979
continue to explore the surface after

713
00:32:39,559 --> 00:32:37,079

we've collected a diverse set of samples

714
00:32:42,249 --> 00:32:39,569
we will drop them off onto the surface

715
00:32:45,049 --> 00:32:42,259
and then have them there for future

716
00:32:46,759 --> 00:32:45,059
sample return mission to continue well I

717
00:32:49,129 --> 00:32:46,769
know you have some tests to keep doing

718
00:32:51,919 --> 00:32:49,139
and I'm actually gonna go check out the

719
00:32:54,109 --> 00:32:51,929
next phase at a different lab we're at a

720
00:32:56,539 --> 00:32:54,119
testing lab affectionately known as the

721
00:32:58,939 --> 00:32:56,549
sandbox and I am here with Austin

722
00:33:01,039 --> 00:32:58,949
Nicholas now can you explain how we are

723
00:33:03,799 --> 00:33:01,049
gonna bring back samples from Mars so

724
00:33:05,899 --> 00:33:03,809
starting from after 2020 has deposited

725
00:33:07,489 --> 00:33:05,909
tubes on the surface there are two more

726
00:33:09,439 --> 00:33:07,499
missions to go and bring the tubes back

727
00:33:12,289 --> 00:33:09,449
to earth the first is a lander mission

728
00:33:14,239 --> 00:33:12,299
it carries three major elements a sample

729
00:33:15,739 --> 00:33:14,249
fetch rover and a sample transfer arm

730
00:33:18,019 --> 00:33:15,749
that lets you transfer the samples from

731
00:33:19,999 --> 00:33:18,029
the fetch Rover into the rocket and a

732
00:33:21,649 --> 00:33:20,009
Mars ascent vehicle which is a rocket

733
00:33:22,219 --> 00:33:21,659
that brings the samples from Mars into

734
00:33:24,499 --> 00:33:22,229
space

735
00:33:26,370 --> 00:33:24,509
meanwhile the orbiter has also launched

736
00:33:27,990 --> 00:33:26,380
from Earth in 2026 and is making it

737
00:33:29,880 --> 00:33:28,000
way towards Mars and it'll be in

738
00:33:32,040 --> 00:33:29,890

position by the time the Rockets fully

739
00:33:33,930 --> 00:33:32,050
loaded the orbiter will then go to the

740
00:33:35,580 --> 00:33:33,940
sample container that the Rockets put

741
00:33:37,140 --> 00:33:35,590
into space and then capture it

742
00:33:37,920 --> 00:33:37,150
ultimately bringing them to earth in

743
00:33:39,990 --> 00:33:37,930
2031

744
00:33:41,550 --> 00:33:40,000
that sounds complicated it is

745
00:33:42,960 --> 00:33:41,560
complicated but fortunately we're not

746
00:33:44,280 --> 00:33:42,970
doing it alone so we have a great

747
00:33:46,020 --> 00:33:44,290
partnership with the European Space

748
00:33:48,120 --> 00:33:46,030
Agency and they're providing some major

749
00:33:49,620 --> 00:33:48,130
pieces of this mission within NASA we've

750
00:33:51,990 --> 00:33:49,630
actually got a number of centers working

751
00:33:53,010 --> 00:33:52,000
on all of the different pieces so we're

752
00:33:54,240 --> 00:33:53,020
partnering with Marshall Space Flight

753
00:33:57,000 --> 00:33:54,250
Center for the Mars ascent vehicle

754
00:33:59,400 --> 00:33:57,010
Langley and Ames for the earth entry

755
00:34:00,780 --> 00:33:59,410
vehicle Glenn for the sample fetch Rover

756
00:34:02,910 --> 00:34:00,790
wheels and we're partnering with Goddard

757
00:34:04,920 --> 00:34:02,920
for the orbiter payload and so there's

758
00:34:06,630 --> 00:34:04,930
really a whole NASA effort to get more

759
00:34:08,669 --> 00:34:06,640
sample return done sounds like there is

760
00:34:11,369 --> 00:34:08,679
a lot of work to be done but this all

761
00:34:13,590 --> 00:34:11,379
kicks off with the launch of Mars 2020

762
00:34:15,659 --> 00:34:13,600
this summer in Cape Canaveral Florida

763
00:34:20,200 --> 00:34:15,669

and there's lots of excitement here as

764
00:34:28,569 --> 00:34:25,829
[Applause]

765
00:34:30,280 --> 00:34:28,579
the Mars sample return mission is a high

766
00:34:32,859 --> 00:34:30,290
priority not only for the scientific

767
00:34:34,839 --> 00:34:32,869
knowledge it will provide but also the

768
00:34:36,879 --> 00:34:34,849
opportunity it presents to tackle a

769
00:34:39,220 --> 00:34:36,889
difficult technological challenge

770
00:34:41,770 --> 00:34:39,230
remember Mars 2020 is going to have the

771
00:34:43,450 --> 00:34:41,780
first Mars helicopter the Mars sample

772
00:34:46,869 --> 00:34:43,460
return will include the first-ever

773
00:34:49,389 --> 00:34:46,879
rocket launched from another planet for

774
00:34:51,970 --> 00:34:49,399
more than 50 years the Aeronautics

775
00:34:54,159 --> 00:34:51,980
Mission Directorate at NASA has advanced

776
00:34:56,680 --> 00:34:54,169
game-changing technologies like

777
00:34:59,050 --> 00:34:56,690
fuel-efficient turbofan engines fuel

778
00:35:02,050 --> 00:34:59,060
saving winglets lighter composite

779
00:35:04,240 --> 00:35:02,060
structures and digital fly-by-wire to

780
00:35:07,950 --> 00:35:04,250
shape modern aviation as we know it

781
00:35:10,750 --> 00:35:07,960
truly NASA is with you when you fly

782
00:35:13,780 --> 00:35:10,760
today we are reinventing aviation for

783
00:35:15,970 --> 00:35:13,790
the next 50 years where aircraft look

784
00:35:18,430 --> 00:35:15,980
different and aircraft are powered

785
00:35:20,530 --> 00:35:18,440
differently the world of aviation is

786
00:35:22,900 --> 00:35:20,540
about to change forever and the men and

787
00:35:25,510 --> 00:35:22,910
women of NASA are leading those changes

788
00:35:27,579 --> 00:35:25,520

the 2021 budget fully supports

789
00:35:30,120 --> 00:35:27,589
Aeronautics research that enables

790
00:35:32,319 --> 00:35:30,130
breakthroughs such as our x57

791
00:35:35,650 --> 00:35:32,329
all-electric experimental airplane

792
00:35:37,030 --> 00:35:35,660
scheduled to fly later this year lessons

793
00:35:39,790 --> 00:35:37,040
learned from the x57

794
00:35:43,690 --> 00:35:39,800
are already being shared with the new

795
00:35:45,609 --> 00:35:43,700
electric vertical lift vehicle market we

796
00:35:48,700 --> 00:35:45,619
are also moving forward on the testing

797
00:35:52,319 --> 00:35:48,710
of the low boom flight demonstrator with

798
00:35:56,140 --> 00:35:52,329
an anticipated first flight in 2022 a

799
00:35:58,059 --> 00:35:56,150
successful quiet supersonic flight

800
00:36:00,730 --> 00:35:58,069
demonstration will pave the way for

801
00:36:03,430 --> 00:36:00,740
Overland supersonic flight that could

802
00:36:06,010 --> 00:36:03,440
cut commercial flight times in half and

803
00:36:08,890 --> 00:36:06,020
the budget supports one Aeronautics

804
00:36:11,470 --> 00:36:08,900
project that in my opinion has one of

805
00:36:12,339 --> 00:36:11,480
the greatest potentials to change all of

806
00:36:15,660 --> 00:36:12,349
our lives

807
00:36:18,460 --> 00:36:15,670
urban air mobility in the near future

808
00:36:20,829 --> 00:36:18,470
semi and fully autonomous vehicles will

809
00:36:23,530 --> 00:36:20,839
provide many new services and carry

810
00:36:26,109 --> 00:36:23,540
packages and people in and around cities

811
00:36:28,599 --> 00:36:26,119
large and small a big part of the urban

812
00:36:30,309 --> 00:36:28,609
air mobility world is the small drones

813
00:36:32,930 --> 00:36:30,319

that will transform the commercial

814
00:36:35,120 --> 00:36:32,940
delivery for industry

815
00:36:39,500 --> 00:36:35,130
see response and agricultural mining

816
00:36:42,680 --> 00:36:39,510
monitoring and so much more friends this

817
00:36:45,170 --> 00:36:42,690
is who we are at NASA all across this

818
00:36:48,500 --> 00:36:45,180
agency I see people that perfectly

819
00:36:51,170 --> 00:36:48,510
exemplify the dedication urgency and

820
00:36:53,660 --> 00:36:51,180
uncommon commitment that was called for

821
00:36:57,050 --> 00:36:53,670
by Vice President Mike Pence just ten

822
00:36:59,720 --> 00:36:57,060
months ago this year we must build on

823
00:37:02,570 --> 00:36:59,730
our success by continuing to devote

824
00:37:04,940 --> 00:37:02,580
ourselves to the agency mission the

825
00:37:06,500 --> 00:37:04,950
milestones we hit this year through the

826
00:37:11,270 --> 00:37:06,510
green run test that's for you again

827
00:37:12,980 --> 00:37:11,280
Palazzo he's gonna hit me later the

828
00:37:15,830 --> 00:37:12,990
milestones we hit this year through the

829
00:37:17,390 --> 00:37:15,840
green run testing of the SLS and in

830
00:37:19,670 --> 00:37:17,400
launching and the launching of

831
00:37:22,400 --> 00:37:19,680
astronauts on american-made Rockets from

832
00:37:25,820 --> 00:37:22,410
American soil will place us on the cusp

833
00:37:27,860 --> 00:37:25,830
of era-defining space exploration and

834
00:37:30,650 --> 00:37:27,870
the science and technology we are

835
00:37:34,220 --> 00:37:30,660
working on right now will prepare us in

836
00:37:38,390 --> 00:37:34,230
this new exploration to take humanity's

837
00:37:43,070 --> 00:37:38,400
next giant leap to Mars friends we are

838
00:37:46,200 --> 00:37:43,080

the Artemis generation and we are going

839
00:37:58,100 --> 00:37:46,210
thank you so much

840
00:38:07,330 --> 00:37:58,110
[Applause]

841
00:38:07,340 --> 00:38:24,339
[Music]

842
00:38:30,289 --> 00:38:27,349
with our eyes fixed on all that lies

843
00:38:32,829 --> 00:38:30,299
ahead we remain steadfast in our

844
00:38:36,500 --> 00:38:32,839
pursuits of knowledge exploration

845
00:38:39,530 --> 00:38:36,510
seeking an understanding life here and

846
00:38:42,380 --> 00:38:39,540
Beyond we see the opportunities before

847
00:38:45,559 --> 00:38:42,390
us a new system to land humans on the

848
00:38:48,349 --> 00:38:45,569
moon a robotic rover to map ice on the

849
00:38:51,500 --> 00:38:48,359
lunar South Pole new entry technologies

850
00:38:54,740 --> 00:38:51,510
for landing on Mars an airplane capable

851
00:38:57,859 --> 00:38:54,750
of quiet supersonic flights all of this

852
00:39:00,440 --> 00:38:57,869
to press humanity forward and it is the

853
00:39:02,780 --> 00:39:00,450
cadence of our efforts throughout 2020

854
00:39:06,410 --> 00:39:02,790
it is building momentum for the painter

855
00:39:08,690 --> 00:39:06,420
the International Space Station remains

856
00:39:11,480 --> 00:39:08,700
the jewel of our efforts in low-earth

857
00:39:14,120 --> 00:39:11,490
orbit as we celebrate 20 years of

858
00:39:16,510 --> 00:39:14,130
continuously living and working in space

859
00:39:19,039 --> 00:39:16,520
and this year with commercial partners

860
00:39:22,579 --> 00:39:19,049
American astronauts will once again

861
00:39:23,059 --> 00:39:22,589
launch on American Rockets from American

862
00:39:26,450 --> 00:39:23,069
soil

863
00:39:29,450 --> 00:39:26,460

this year we bring to life the core

864
00:39:32,180 --> 00:39:29,460
stage of the most powerful rocket ever

865
00:39:34,849 --> 00:39:32,190
built the Space Launch System and the

866
00:39:37,280 --> 00:39:34,859
Orion spacecraft will complete its

867
00:39:40,130 --> 00:39:37,290
testing then to make its way to our

868
00:39:43,099 --> 00:39:40,140
space coast for the uncrewed Artemis one

869
00:39:45,020 --> 00:39:43,109
mission during the course of 2020 the

870
00:39:47,990 --> 00:39:45,030
developments of the gateway lunar

871
00:39:51,770 --> 00:39:48,000
station will pave the way for our return

872
00:39:54,140 --> 00:39:51,780
to the moon like 2024 with every

873
00:39:57,300 --> 00:39:54,150
advancement for the moon we push forward

874
00:39:59,520 --> 00:39:57,310
similar capabilities for Mars

875
00:40:02,490 --> 00:39:59,530
and just as we have recently expanded

876
00:40:04,980 --> 00:40:02,500
the astronaut corps we once again will

877
00:40:07,800 --> 00:40:04,990
invite explorers to apply for the

878
00:40:10,950 --> 00:40:07,810
missions ahead as we reach farther and

879
00:40:13,620 --> 00:40:10,960
farther out we see more of the intricate

880
00:40:15,780 --> 00:40:13,630
beauty of our home planet our fleet of

881
00:40:17,970 --> 00:40:15,790
earth satellites and the scientists

882
00:40:21,540 --> 00:40:17,980
using their data will reveal insights

883
00:40:24,290 --> 00:40:21,550
about our ever changing planet for the

884
00:40:27,330 --> 00:40:24,300
first time we will fly our experimental

885
00:40:30,600 --> 00:40:27,340
all-electric aircraft with motors better

886
00:40:32,760 --> 00:40:30,610
efficient and reliable and this year we

887
00:40:35,310 --> 00:40:32,770
will see the final results from our

888
00:40:39,390 --> 00:40:35,320

field demos of a system to support the

889
00:40:42,090 --> 00:40:39,400
safe flight of drones in the drumbeat of

890
00:40:45,420 --> 00:40:42,100
this year we will see our spacecraft get

891
00:40:48,210 --> 00:40:45,430
closer and closer to the Sun touch the

892
00:40:52,260 --> 00:40:48,220
surface of an asteroid and launch our

893
00:40:55,020 --> 00:40:52,270
most advanced Rover yet to Mars this is

894
00:40:58,020 --> 00:40:55,030
a year of action our progress across

895
00:41:01,230 --> 00:40:58,030
this agency is growing with each

896
00:41:04,410 --> 00:41:01,240
milestone we are preparing to go farther

897
00:41:07,030 --> 00:41:04,420
than ever before and lay the foundation

898
00:41:14,510 --> 00:41:07,040
for all that comes next

899
00:41:19,260 --> 00:41:14,520
[Music]

900
00:41:22,170 --> 00:41:19,270
50 years ago we went to the moon we

901
00:41:26,070 --> 00:41:22,180
called it Apollo well many people don't

902
00:41:31,340 --> 00:41:26,080
know is that Apollo had a twin she was a

903
00:41:37,830 --> 00:41:34,620
we are returning to the men as a new

904
00:41:40,680 --> 00:41:37,840
generation of explorers this time to

905
00:41:43,410 --> 00:41:40,690
stay and to prepare to achieve