1
00:00:12,830 --> 00:00:11,390
from Kitty Hawk to Cape Kennedy NASA the

2
00:00:17,300 --> 00:00:12,840
National Aeronautics and Space

3
00:00:30,890 --> 00:00:17,310
Administration presents Aeronautics and

4
00:00:37,470 --> 00:00:33,930
1966 a year in which aeronautics and

5
00:00:39,840 --> 00:00:37,480
space in the news achievements which are

6
00:00:50,270 --> 00:00:39,850
expanding man's knowledge here is a

7
00:00:55,250 --> 00:00:52,970
this animation shows how surveyor one

8
00:00:58,119 --> 00:00:55,260
looked as it came in for a soft landing

9
00:01:01,280 --> 00:00:58,129
on the moon the date June 2nd as

10
00:01:03,020 --> 00:01:01,290
evidenced by these photos a spacecraft

11
00:01:06,020 --> 00:01:03,030
can land on the lunar surface and

12
00:01:08,270 --> 00:01:06,030
probably a man can walk on it some of

13
00:01:10,790 --> 00:01:08,280

the terrain is very similar to our soil

14
00:01:14,740 --> 00:01:10,800
a man would leave footprints as he would

15
00:01:17,120 --> 00:01:14,750
in sand many rocks dot the moon scape

16
00:01:19,700 --> 00:01:17,130
future flights will photograph other

17
00:01:21,999 --> 00:01:19,710
possible manned landing areas and carry

18
00:01:24,440 --> 00:01:22,009
instruments to measure surface hardness

19
00:01:30,499 --> 00:01:24,450
information needed before men land

20
00:01:32,810 --> 00:01:30,509
they're charting actual landing sites

21
00:01:36,290 --> 00:01:32,820
for the astronauts is the job of lunar

22
00:01:38,450 --> 00:01:36,300
orbiter two of the 850-pound satellites

23
00:01:41,389 --> 00:01:38,460
have orbited the moon photographing and

24
00:01:45,020 --> 00:01:41,399
mapping wide areas sometimes sweeping as

25
00:01:46,790 --> 00:01:45,030
low as 25 miles above the surface here

26
00:01:48,859 --> 00:01:46,800
are some of the pictures pictures

27
00:01:51,260 --> 00:01:48,869
helping to determine the height and

28
00:01:54,260 --> 00:01:51,270
slope of lunar mountains and the depth

29
00:01:57,560 --> 00:01:54,270
of craters these remarkable views show

30
00:02:00,499 --> 00:01:57,570
the crater Copernicus pictures too of

31
00:02:05,870 --> 00:02:00,509
the backside of the moon and the view of

32
00:02:08,240 --> 00:02:05,880
Earth from 240,000 miles in space the

33
00:02:10,609 --> 00:02:08,250
surveyor lunar orbiter combination has

34
00:02:13,039 --> 00:02:10,619
returned a valuable scientific data

35
00:02:19,349 --> 00:02:13,049
about the moon helping pave the way for

36
00:02:24,160 --> 00:02:21,819
American weather satellites are a good

37
00:02:26,229 --> 00:02:24,170
example of technological potential put

38
00:02:29,140 --> 00:02:26,239

to work not only for our own well-being

39
00:02:31,209 --> 00:02:29,150
but that of other nations the

40
00:02:33,130 --> 00:02:31,219
high-flying picture takers have given

41
00:02:35,440 --> 00:02:33,140
advance warnings on everything from

42
00:02:38,229 --> 00:02:35,450
hurricanes in the Gulf of Mexico to

43
00:02:41,979 --> 00:02:38,239
great sand storms in North Africa and

44
00:02:44,649 --> 00:02:41,989
Arabia three satellites making up the

45
00:02:47,860 --> 00:02:44,659
Tyros operational system were launched

46
00:02:49,839 --> 00:02:47,870
for the weather bureau in 1966 and are

47
00:02:51,720 --> 00:02:49,849
returning daily meteorological

48
00:02:54,849 --> 00:02:51,730
information around the world

49
00:02:59,890 --> 00:02:54,859
Nimbus an advanced NASA research weather

50
00:03:02,890 --> 00:02:59,900
satellite was also launched Nimbus took

51
00:03:05,140 --> 00:03:02,900
both day and infrared nighttime pictures

52
00:03:08,229 --> 00:03:05,150
over the United States and of the entire

53
00:03:13,250 --> 00:03:08,239
Earth predecessor to long-range weather

54
00:03:19,670 --> 00:03:16,070
one of more than a dozen scientific

55
00:03:22,300 --> 00:03:19,680
satellites launched by NASA in 1966 was

56
00:03:26,000 --> 00:03:22,310
orbiting geophysical Observatory

57
00:03:28,570 --> 00:03:26,010
nicknamed ogo it studies space phenomena

58
00:03:31,250 --> 00:03:28,580
such as radiation belts solar plasma

59
00:03:39,319 --> 00:03:31,260
magnetic fields their effects on each

60
00:03:41,630 --> 00:03:39,329
other and the earth another satellite is

61
00:03:44,149 --> 00:03:41,640
greatly refining our mapmaking ability

62
00:03:47,390 --> 00:03:44,159
appearing as a bright new star it is

63
00:03:49,940 --> 00:03:47,400

called patos badgeos carries no

64
00:03:52,789 --> 00:03:49,950
instruments by reflecting sunlight from

65
00:03:54,699 --> 00:03:52,799
its 100-foot shiny surface it provides

66
00:03:57,589 --> 00:03:54,709
an orbiting point source of light

67
00:03:59,960 --> 00:03:57,599
serving as a beacon in the sky the

68
00:04:02,210 --> 00:03:59,970
satellite is simultaneously photographed

69
00:04:04,970 --> 00:04:02,220
by widely separated ground stations

70
00:04:07,130 --> 00:04:04,980
throughout the world with the help of

71
00:04:09,800 --> 00:04:07,140
paggio sand using the principles of

72
00:04:16,750 --> 00:04:09,810
geometry the Earth's surface can now be

73
00:04:22,930 --> 00:04:19,810
to pioneer spacecraft were launched into

74
00:04:26,530 --> 00:04:22,940
orbit around the Sun pioneers six and

75
00:04:28,780 --> 00:04:26,540
seven between now and 1970 an entire

76
00:04:31,300 --> 00:04:28,790
series of these Sun Watchers will be put

77
00:04:34,720 --> 00:04:31,310
into orbit around the Sun investigating

78
00:04:37,360 --> 00:04:34,730
reporting future pioneers will venture

79
00:04:40,000 --> 00:04:37,370
even closer to the Sun observing the

80
00:04:43,000 --> 00:04:40,010
solar atmosphere close up and warning of

81
00:04:51,400 --> 00:04:43,010
solar storms sending back useful data

82
00:04:53,830 --> 00:04:51,410
about the sun-earth relationship more

83
00:04:55,990 --> 00:04:53,840
than 300 sounding rockets were launched

84
00:04:58,330 --> 00:04:56,000
from various locations around the world

85
00:05:00,610 --> 00:04:58,340
these small rockets play an important

86
00:05:03,490 --> 00:05:00,620
role as they scientifically probed the

87
00:05:05,710 --> 00:05:03,500
atmosphere and ionosphere testing out

88
00:05:08,590 --> 00:05:05,720

equipment and experiments to be flown on

89
00:05:11,310 --> 00:05:08,600
future satellites and helping us better

90
00:05:13,960 --> 00:05:11,320
understand weather and communications

91
00:05:15,550 --> 00:05:13,970
sounding Rockets so reliable and

92
00:05:18,370 --> 00:05:15,560
flexible they can be launched during

93
00:05:20,440 --> 00:05:18,380
sub-zero weather or from on board a ship

94
00:05:25,749 --> 00:05:20,450
at sea to take measurements during a

95
00:05:29,230 --> 00:05:28,450
total eclipses happen only once every

96
00:05:32,769 --> 00:05:29,240
two years

97
00:05:35,350 --> 00:05:32,779
November 12 1966 was the date of one of

98
00:05:38,260 --> 00:05:35,360
these occurrences the place South

99
00:05:40,029 --> 00:05:38,270
America certain celestial phenomena can

100
00:05:43,869 --> 00:05:40,039
be recorded only when a total eclipse

101
00:05:45,579 --> 00:05:43,879
blots out the sun's direct light 300

102
00:05:47,230 --> 00:05:45,589
scientists from the US and other

103
00:05:50,049 --> 00:05:47,240
countries complete with equipment

104
00:05:52,809 --> 00:05:50,059
gathered in South America to witness and

105
00:05:55,420 --> 00:05:52,819
record the event some flew on high-speed

106
00:05:57,909 --> 00:05:55,430
jets which intercepted the moon shadow

107
00:06:00,399 --> 00:05:57,919
and then raced along with it out over

108
00:06:02,739 --> 00:06:00,409
the Atlantic others used sounding

109
00:06:05,320 --> 00:06:02,749
rockets to record changes in winds and

110
00:06:08,529 --> 00:06:05,330
temperatures and make x-ray measurements

111
00:06:10,260 --> 00:06:08,539
as the moon's shadow swept from coast to

112
00:06:12,700 --> 00:06:10,270
coast across South America

113
00:06:15,700 --> 00:06:12,710

scientists had an opportunity to acquire

114
00:06:22,299 --> 00:06:15,710
a history of a complete solar event in a

115
00:06:25,570 --> 00:06:22,309
cooperative international program this

116
00:06:32,740 --> 00:06:25,580
is the hypersonic research vehicle x-15

117
00:06:37,240 --> 00:06:34,930
in the atmosphere it flies like an

118
00:06:39,940 --> 00:06:37,250
airplane at the edge of space it is

119
00:06:41,980 --> 00:06:39,950
controlled by Gemini type reaction Jets

120
00:06:44,860 --> 00:06:41,990
on November 18th

121
00:06:47,680 --> 00:06:44,870
the x-15 rocketed to a world record

122
00:06:50,170 --> 00:06:47,690
speed for winged aircraft four thousand

123
00:06:52,960 --> 00:06:50,180
one hundred fifty nine miles per hour

124
00:06:57,190 --> 00:06:52,970
the sleek black plane has also reached

125
00:07:00,610 --> 00:06:57,200
altitudes of more than 67 miles but the

126
00:07:02,980 --> 00:07:00,620
x-15 is more than all this it is a

127
00:07:05,050 --> 00:07:02,990
flying research laboratory making

128
00:07:07,720 --> 00:07:05,060
contributions that range from bio

129
00:07:10,540 --> 00:07:07,730
astronautics to future leadership in

130
00:07:21,820 --> 00:07:10,550
high-speed high-altitude supersonic and

131
00:07:24,190 --> 00:07:21,830
hypersonic flight there may be a need

132
00:07:26,200 --> 00:07:24,200
someday to shuttle men and equipment

133
00:07:28,630 --> 00:07:26,210
between orbiting space stations and

134
00:07:31,510 --> 00:07:28,640
earth it is for this reason that NASA

135
00:07:34,990 --> 00:07:31,520
has been studying lifting bodies this

136
00:07:36,550 --> 00:07:35,000
prototype called the m2 f2 is one of the

137
00:07:39,610 --> 00:07:36,560
lifting bodies currently undergoing

138
00:07:42,100 --> 00:07:39,620

tests wingless lifting bodies are being

139
00:07:43,890 --> 00:07:42,110
developed to operate in space then

140
00:07:51,400 --> 00:07:43,900
returned through the Earth's atmosphere

141
00:07:56,050 --> 00:07:54,220
research continued in developing systems

142
00:07:59,440 --> 00:07:56,060
that might power future space missions

143
00:08:02,200 --> 00:07:59,450
yet undefined present-day Rockets are

144
00:08:04,420 --> 00:08:02,210
for the most part liquid fuel now under

145
00:08:07,600 --> 00:08:04,430
study our solid propellant rockets of

146
00:08:09,640 --> 00:08:07,610
equal or greater thrust the Florida

147
00:08:11,920 --> 00:08:09,650
Everglades was the site of the second

148
00:08:14,620 --> 00:08:11,930
test firing of a powerful solid fuel

149
00:08:16,510 --> 00:08:14,630
rocket motor the eight story tall motor

150
00:08:19,450 --> 00:08:16,520
spewed out a pillar of white-hot flame

151
00:08:22,330 --> 00:08:19,460
from its exhaust nozzle the so called

152
00:08:24,850 --> 00:08:22,340
large solid burned eight hundred forty

153
00:08:34,180 --> 00:08:24,860
tons of rubber like fuel at a rate of

154
00:08:36,730 --> 00:08:34,190
six tons per second also in the research

155
00:08:38,740 --> 00:08:36,740
stage nuclear propulsion engines a

156
00:08:40,990 --> 00:08:38,750
series of tests are being jointly

157
00:08:44,110 --> 00:08:41,000
conducted by NASA and the Atomic Energy

158
00:08:47,260 --> 00:08:44,120
Commission the rocket would use a

159
00:08:49,600 --> 00:08:47,270
nuclear reactor to produce thrust small

160
00:08:52,330 --> 00:08:49,610
less fuel consuming nuclear engines

161
00:08:54,490 --> 00:08:52,340
being tested now may someday enable

162
00:08:56,590 --> 00:08:54,500
scientists to plan long missions to

163
00:09:02,380 --> 00:08:56,600

distant points in space and carry

164
00:09:08,259 --> 00:09:05,500
project Gemini this country's second man

165
00:09:10,420 --> 00:09:08,269
venture into space falls between the

166
00:09:13,540 --> 00:09:10,430
experimental mercury program of the

167
00:09:16,090 --> 00:09:13,550
early 60s and operational Apollo flights

168
00:09:19,380 --> 00:09:16,100
we've gained much experience from

169
00:09:21,519 --> 00:09:19,390
Germany nearly 2,000 man-hours in space

170
00:09:24,940 --> 00:09:21,529
experience which has direct application

171
00:09:27,310 --> 00:09:24,950
to the Apollo program there were five

172
00:09:30,780 --> 00:09:27,320
Gemini flights during the year rounding

173
00:09:33,220 --> 00:09:30,790
out a series of 1210 manned to unmanned

174
00:09:35,440 --> 00:09:33,230
Gemini operated in a building block

175
00:09:37,329 --> 00:09:35,450
fashion experience learned from one

176
00:09:39,430 --> 00:09:37,339
mission was applied to the next

177
00:09:44,300 --> 00:09:39,440
this included both the successes and

178
00:09:49,249 --> 00:09:47,030
Germany's major requirements rendezvous

179
00:09:52,189 --> 00:09:49,259
and docking long-duration missions

180
00:09:54,379 --> 00:09:52,199
learning to work in space and the

181
00:09:56,540 --> 00:09:54,389
ability to bring a spacecraft down to

182
00:10:00,139 --> 00:09:56,550
earth close to a desired landing point

183
00:10:03,319 --> 00:10:00,149
by the end of 1965 we had satisfied the

184
00:10:07,610 --> 00:10:03,329
long-duration mission requirement during

185
00:10:09,290 --> 00:10:07,620
March 1966 Gemini 8 astronauts Armstrong

186
00:10:11,449 --> 00:10:09,300
in Scott carried out the first

187
00:10:15,429 --> 00:10:11,459
rendezvous and docking with an orbiting

188
00:10:17,840 --> 00:10:15,439

Aegina but all did not go well a

189
00:10:20,299 --> 00:10:17,850
malfunction caused the spacecraft to

190
00:10:23,420 --> 00:10:20,309
roll erratically the crew was forced to

191
00:10:25,999 --> 00:10:23,430
undock and make an early landing in the

192
00:10:28,759 --> 00:10:26,009
Pacific proving the ability to evolve

193
00:10:34,100 --> 00:10:28,769
alternate plans to learn from the

194
00:10:36,799 --> 00:10:34,110
unexpected Gemini 9 had a double problem

195
00:10:39,319 --> 00:10:36,809
the Agena could not be put into orbit

196
00:10:41,720 --> 00:10:39,329
and as you can see here the shroud

197
00:10:44,809 --> 00:10:41,730
surrounding a substitute target did not

198
00:10:47,269 --> 00:10:44,819
come completely off even so Stafford and

199
00:10:49,309 --> 00:10:47,279
Cernan rendezvous three separate times

200
00:10:51,949 --> 00:10:49,319
with what they called the angry

201
00:10:56,990 --> 00:10:51,959
alligator and Cernan spent more than one

202
00:11:02,540 --> 00:11:00,230
then Germany ten when astronauts Jung

203
00:11:05,690 --> 00:11:02,550
and Collins met with and latched on to

204
00:11:07,970 --> 00:11:05,700
an orbiting a Gina the docked craft then

205
00:11:10,310 --> 00:11:07,980
powered up to rendezvous with the Agena

206
00:11:14,090 --> 00:11:10,320
vehicle left in space from the Gemini 8

207
00:11:16,430 --> 00:11:14,100
mission in addition Mike Collins became

208
00:11:18,830 --> 00:11:16,440
the third American to practice extra

209
00:11:20,660 --> 00:11:18,840
vehicular activity although trouble with

210
00:11:25,700 --> 00:11:20,670
his oxygen systems shortened the

211
00:11:28,520 --> 00:11:25,710
spacewalk Gemini 11 was also a

212
00:11:31,310 --> 00:11:28,530
successful flight a new altitude record

213
00:11:34,580 --> 00:11:31,320

of 860 miles was established with the

214
00:11:37,190 --> 00:11:34,590
docked Gemini Aegina combination as in

215
00:11:43,790 --> 00:11:37,200
the two previous missions a VA was cut

216
00:11:46,310 --> 00:11:43,800
short this time because of fatigue but

217
00:11:48,850 --> 00:11:46,320
Germany 12 showed how man could work

218
00:11:51,710 --> 00:11:48,860
more productively outside his spaceship

219
00:11:54,230 --> 00:11:51,720
astronaut edwin aldrin using special

220
00:11:55,700 --> 00:11:54,240
hand holds tethers and foot restraints

221
00:11:57,800 --> 00:11:55,710
to counteract the effects of

222
00:12:00,560 --> 00:11:57,810
weightlessness spent more than five

223
00:12:04,490 --> 00:12:00,570
hours outside the craft completing all

224
00:12:06,530 --> 00:12:04,500
his evie a tasks a 100 foot line was

225
00:12:09,200 --> 00:12:06,540
attached between a Gina and Gemini

226
00:12:11,329 --> 00:12:09,210
conserving valuable fuel and even

227
00:12:16,100 --> 00:12:11,339
creating a small amount of artificial

228
00:12:18,410 --> 00:12:16,110
gravity during all the Gemini missions

229
00:12:20,300 --> 00:12:18,420
many important scientific and

230
00:12:22,790 --> 00:12:20,310
engineering experiments were carried out

231
00:12:25,100 --> 00:12:22,800
and hundreds of photographs like these

232
00:12:29,540 --> 00:12:25,110
are giving us a better understanding of

233
00:12:31,550 --> 00:12:29,550
our earth of special significance to has

234
00:12:33,590 --> 00:12:31,560
been the ability gained to control a

235
00:12:36,170 --> 00:12:33,600
spacecraft during the all-important

236
00:12:38,870 --> 00:12:36,180
reentry an ability which has allowed

237
00:12:42,350 --> 00:12:38,880
Germany to land within full view of the

238
00:12:45,020 --> 00:12:42,360

recovery forces Germany has prepared as

239
00:12:51,120 --> 00:12:45,030
well for all future manned missions into

240
00:12:56,260 --> 00:12:53,590
1966 was a year of development and

241
00:12:59,170 --> 00:12:56,270
testing for Apollo Saturn escape systems

242
00:13:01,210 --> 00:12:59,180
fuel cells spacecraft all the major

243
00:13:06,490 --> 00:13:01,220
components are being worked up to a

244
00:13:08,500 --> 00:13:06,500
state of readiness three uprated Saturn

245
00:13:10,630 --> 00:13:08,510
one Rockets were sent aloft from Cape

246
00:13:12,580 --> 00:13:10,640
Kennedy to check out the performance of

247
00:13:15,520 --> 00:13:12,590
the launch vehicle and unmanned

248
00:13:18,190 --> 00:13:15,530
spacecraft all went well including

249
00:13:24,910 --> 00:13:18,200
recovery in the South Atlantic this a

250
00:13:26,950 --> 00:13:24,920
prelude to manned Apollo missions at the

251
00:13:29,200 --> 00:13:26,960
Kennedy Space Center a full-scale

252
00:13:32,260 --> 00:13:29,210
engineering model of Apollo and the

253
00:13:34,120 --> 00:13:32,270
Saturn 5 rocket were put together inside

254
00:13:36,670 --> 00:13:34,130
the newly built Vehicle Assembly

255
00:13:38,860 --> 00:13:36,680
Building from there a giant crawler

256
00:13:45,600 --> 00:13:38,870
transported the rocket and craft to the

257
00:13:51,580 --> 00:13:49,060
1966 a year of exploration and

258
00:13:53,500 --> 00:13:51,590
investigation with a building toward

259
00:13:56,140 --> 00:13:53,510
faster more efficient planes of the

260
00:13:58,210 --> 00:13:56,150
future developing space hardware at

261
00:14:02,350 --> 00:13:58,220
industrial plants throughout the United

262
00:14:05,370 --> 00:14:02,360
States or performing basic research at

263
00:14:08,320 --> 00:14:05,380

University and government laboratories

264
00:14:10,420 --> 00:14:08,330
1966 was a year of progress in both

265
00:14:21,929 --> 00:14:10,430
aeronautics and this country's

266
00:14:27,779 --> 00:14:24,029
this has been an Aeronautics and Space