1
00:00:22,250 --> 00:00:19,490
NASA is the national aeronautics and

2
00:00:24,019 --> 00:00:22,260
space administration nasa has many

3
00:00:26,240 --> 00:00:24,029
facilities around the United States and

4
00:00:29,240 --> 00:00:26,250
the people working at them have a

5
00:00:31,759 --> 00:00:29,250
variety of jobs to do some work in

6
00:00:34,610 --> 00:00:31,769
aeronautics others concentrate on

7
00:00:36,229 --> 00:00:34,620
improving aircraft engines and some are

8
00:00:40,520 --> 00:00:36,239
involved with a space shuttle and Space

9
00:00:43,490 --> 00:00:40,530
Flight at all the center's many

10
00:00:45,229 --> 00:00:43,500
specialized skills are necessary the

11
00:00:47,510 --> 00:00:45,239
dryden flight research facility is

12
00:00:50,660 --> 00:00:47,520
NASA's primary installation for flight

13
00:00:52,819 --> 00:00:50,670

research it's located 80 miles north of

14
00:00:55,580 --> 00:00:52,829
Los Angeles on the western edge of the

15
00:00:57,680 --> 00:00:55,590
Mojave Desert over the desert the sky is

16
00:01:00,410 --> 00:00:57,690
clear enough to fly almost every day of

17
00:01:02,840 --> 00:01:00,420
the year and NASA has access to over

18
00:01:07,039 --> 00:01:02,850
20,000 square miles of airspace for

19
00:01:09,080 --> 00:01:07,049
research flying we use the same dry lake

20
00:01:11,870 --> 00:01:09,090
bed and runways that the Air Force uses

21
00:01:14,270 --> 00:01:11,880
and these are the exact same runways in

22
00:01:18,890 --> 00:01:14,280
dry lake bed that the Space Shuttle uses

23
00:01:20,660 --> 00:01:18,900
when it lands at Edwards Air Base test

24
00:01:23,600 --> 00:01:20,670
flight programs began at Dryden in the

25
00:01:26,030 --> 00:01:23,610
late 1940s some of these aircraft looks

26
00:01:28,399 --> 00:01:26,040
silly to us now but the risks taken then

27
00:01:31,219 --> 00:01:28,409
have shaped airplane flight as we know

28
00:01:33,679 --> 00:01:31,229
it today the x-series or experimental

29
00:01:36,410 --> 00:01:33,689
aircraft showed that man could fly

30
00:01:39,649 --> 00:01:36,420
faster than the speed of sound test on

31
00:01:41,149 --> 00:01:39,659
the x-15 in the late 1950s helped the

32
00:01:44,110 --> 00:01:41,159
United States develop a manned

33
00:01:49,610 --> 00:01:47,090
this funny-looking bird is the xb-70

34
00:01:51,770 --> 00:01:49,620
during its flights over Dryden NASA

35
00:01:53,660 --> 00:01:51,780
learned some things that made supersonic

36
00:01:58,910 --> 00:01:53,670
flight with large airplanes more

37
00:02:01,040 --> 00:01:58,920
practical quite a few wingless vehicles

38
00:02:05,000 --> 00:02:01,050

will pull through the air or flew from

39
00:02:06,740 --> 00:02:05,010
dryden during the 1960s and 70s NASA was

40
00:02:09,139 --> 00:02:06,750
looking for a way to prove that it was

41
00:02:11,780 --> 00:02:09,149
possible to fly in space and safely

42
00:02:16,210 --> 00:02:11,790
return to Earth these tests eventually

43
00:02:21,590 --> 00:02:18,860
before the all-electric flight control

44
00:02:23,540 --> 00:02:21,600
system and fly-by-wire technology was

45
00:02:26,660 --> 00:02:23,550
put into today's airplanes they were

46
00:02:29,120 --> 00:02:26,670
much heavier and slower that's because

47
00:02:31,010 --> 00:02:29,130
rods and connections to steer the planes

48
00:02:34,220 --> 00:02:31,020
and keep them in the air were made of

49
00:02:36,230 --> 00:02:34,230
heavier metals now computers could relay

50
00:02:40,520 --> 00:02:36,240
the pilots instructions to the various

51
00:02:42,890 --> 00:02:40,530
parts of the airplane the supercritical

52
00:02:45,860 --> 00:02:42,900
wing concept was also tested by NASA

53
00:02:48,020 --> 00:02:45,870
it's a thinner wing flatter on top and

54
00:02:49,940 --> 00:02:48,030
more rounded on the bottom it cuts

55
00:02:51,979 --> 00:02:49,950
through the air better which helps a

56
00:02:57,040 --> 00:02:51,989
plane cruise at higher speeds with less

57
00:03:03,270 --> 00:02:59,740
test today at Dryden include high angle

58
00:03:07,000 --> 00:03:03,280
of attack research with the f-18 the x29

59
00:03:11,880 --> 00:03:07,010
sr-71 f15 digital systems research and

60
00:03:14,380 --> 00:03:11,890
laminar flow studies with the f16 XL's

61
00:03:16,300 --> 00:03:14,390
the people who work at Dryden need to

62
00:03:19,720 --> 00:03:16,310
know many different things things like

63
00:03:21,460 --> 00:03:19,730

math science and computer skills also

64
00:03:23,890 --> 00:03:21,470
the people need to be able to speak

65
00:03:26,830 --> 00:03:23,900
clearly to one another and to understand

66
00:03:28,150 --> 00:03:26,840
their fellow workers let's take a look

67
00:03:29,950 --> 00:03:28,160
at some of the people who work in the

68
00:03:34,870 --> 00:03:29,960
shops and laboratories at the driving

69
00:03:36,700 --> 00:03:34,880
flight research facility this is the

70
00:03:38,380 --> 00:03:36,710
high temperature and loads calibration

71
00:03:41,020 --> 00:03:38,390
lab where people test many different

72
00:03:42,940 --> 00:03:41,030
aircraft parts researchers would much

73
00:03:44,500 --> 00:03:42,950
rather see what affects heat and stress

74
00:03:48,010 --> 00:03:44,510
have on these parts on the ground

75
00:03:49,840 --> 00:03:48,020
instead of in flight there are shops at

76
00:03:52,150 --> 00:03:49,850
Dryden where finely tooled aircraft

77
00:03:54,910 --> 00:03:52,160
parts are made in another section people

78
00:03:57,010 --> 00:03:54,920
repair build and install electronics and

79
00:04:01,570 --> 00:03:57,020
other aircraft parts which keep the

80
00:04:03,520 --> 00:04:01,580
planes in the air aircraft communication

81
00:04:08,410 --> 00:04:03,530
and navigation equipment is maintained

82
00:04:10,120 --> 00:04:08,420
at Dryden technicians in the

83
00:04:11,650 --> 00:04:10,130
environmental testing lab run the

84
00:04:13,720 --> 00:04:11,660
equipment through simulated flight

85
00:04:17,409 --> 00:04:13,730
conditions to make sure it works okay

86
00:04:19,570 --> 00:04:17,419
before it goes on an aircraft this is

87
00:04:22,000 --> 00:04:19,580
the water tunnel at Dryden here model

88
00:04:24,159 --> 00:04:22,010

airplanes are used dive events are

89
00:04:26,590 --> 00:04:24,169
installed on them so engineers can see

90
00:04:28,900 --> 00:04:26,600
the flows coming off the model the same

91
00:04:33,360 --> 00:04:28,910
as if it was an air flow across the real

92
00:04:37,900 --> 00:04:35,710
adjustments made to the model can also

93
00:04:40,270 --> 00:04:37,910
apply to the actual airplane and help

94
00:04:41,830 --> 00:04:40,280
improve flight and it's less expensive

95
00:04:45,760 --> 00:04:41,840
than taking the life-size airplane

96
00:04:47,410 --> 00:04:45,770
through wind tunnel testing computer

97
00:04:49,540 --> 00:04:47,420
skills are needed for the people to work

98
00:04:52,000 --> 00:04:49,550
in the data analysis facilities at NASA

99
00:04:54,040 --> 00:04:52,010
this is where flight research data is

100
00:04:56,350 --> 00:04:54,050
processed and information is shared with

101
00:05:00,280 --> 00:04:56,360
other NASA centers and test sites around

102
00:05:02,530 --> 00:05:00,290
the country people working in dryden

103
00:05:05,050 --> 00:05:02,540
simulator labs need a wide variety of

104
00:05:07,030 --> 00:05:05,060
high-tech and computer skills this is

105
00:05:10,360 --> 00:05:07,040
where aircraft flight simulators and

106
00:05:11,890 --> 00:05:10,370
computers create situations helpful in

107
00:05:14,800 --> 00:05:11,900
predicting how the aircraft will

108
00:05:17,080 --> 00:05:14,810
actually perform our specially equipped

109
00:05:18,790 --> 00:05:17,090
control rooms are manned by experts to

110
00:05:25,090 --> 00:05:18,800
monitor the various research gathering

111
00:05:27,580 --> 00:05:25,100
missions on the ground the life support

112
00:05:29,710 --> 00:05:27,590
team keeps flight suits parachutes

113
00:05:31,210 --> 00:05:29,720

oxygen supplies and other equipment

114
00:05:33,400 --> 00:05:31,220
ready for our pilots and flight

115
00:05:37,210 --> 00:05:33,410
engineers who carry out the research

116
00:05:39,070 --> 00:05:37,220
flights as you can see NASA has helped

117
00:05:41,740 --> 00:05:39,080
shaped aviation history in many ways

118
00:05:44,860 --> 00:05:41,750
we've sent men and machines into space

119
00:05:46,630 --> 00:05:44,870
to the moon and other planets we have

120
00:05:48,540 --> 00:05:46,640
satellites that circle the earth which

121
00:05:50,620 --> 00:05:48,550
help people forecast the weather and

122
00:05:52,750 --> 00:05:50,630
information gathered from computer

123
00:05:55,960 --> 00:05:52,760
simulation that has even been used to

124
00:05:57,640 --> 00:05:55,970
make valves for an artificial heart the

125
00:05:59,890 --> 00:05:57,650
dragon flight research facility is a

126
00:06:01,870 --> 00:05:59,900
very important part of NASA what is

127
00:06:03,700 --> 00:06:01,880
being flown at Dryden today will have a

128
00:06:06,700 --> 00:06:03,710
direct impact on the airplanes of