
NASA
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Deputy Project Scientist

1
00:00:04,390 --> 00:00:02,629
we are awaiting a

2
00:00:06,869 --> 00:00:04,400
cargo launch that will be taking place

3
00:00:09,030 --> 00:00:06,879
on saturday as mentioned spacex 4 is

4
00:00:11,589 --> 00:00:09,040
scheduled to launch to the space station

5
00:00:13,749 --> 00:00:11,599
later this week saturday to be exact

6
00:00:15,589 --> 00:00:13,759
carrying with it important research

7
00:00:18,070 --> 00:00:15,599
benefiting life on earth as well as

8
00:00:20,390 --> 00:00:18,080
future exploration missions laurie meigs

9
00:00:22,070 --> 00:00:20,400
joins us now live from the kennedy space

10
00:00:23,990 --> 00:00:22,080
center in florida where many of the

11
00:00:26,230 --> 00:00:24,000
scientists and investigators have

12
00:00:27,830 --> 00:00:26,240
arrived to see their payloads off and

13
00:00:31,029 --> 00:00:27,840

loy i think you have a couple of them

14
00:00:32,709 --> 00:00:31,039
with you now right

15
00:00:34,549 --> 00:00:32,719
that's right things are getting really

16
00:00:36,549 --> 00:00:34,559
exciting here at kennedy space center as

17
00:00:38,630 --> 00:00:36,559
we near launch day today we're going to

18
00:00:41,430 --> 00:00:38,640
talk about an experiment that features

19
00:00:44,150 --> 00:00:41,440
college students and fruit flies joining

20
00:00:46,869 --> 00:00:44,160
me now is sharmila bhattacharya she is

21
00:00:49,110 --> 00:00:46,879
the principal investigator for the ames

22
00:00:50,790 --> 00:00:49,120
student fruit fly experiment and amy

23
00:00:52,310 --> 00:00:50,800
gresser the deputy project scientist

24
00:00:54,790 --> 00:00:52,320
thank you both for joining us today

25
00:00:56,310 --> 00:00:54,800
first of all sharmila tell us why we

26
00:00:58,549 --> 00:00:56,320
study fruit flies

27
00:01:01,349 --> 00:00:58,559
yeah good question so fruit flies are

28
00:01:02,470 --> 00:01:01,359
actually a very very interesting and

29
00:01:05,590 --> 00:01:02,480
useful

30
00:01:07,910 --> 00:01:05,600
uh little critter to to use for science

31
00:01:10,230 --> 00:01:07,920
uh people have been studying fruit flies

32
00:01:12,310 --> 00:01:10,240
and using them uh to understand

33
00:01:13,429 --> 00:01:12,320
important questions for over a hundred

34
00:01:16,950 --> 00:01:13,439
years

35
00:01:19,590 --> 00:01:16,960
and so genetically we know a lot about

36
00:01:22,469 --> 00:01:19,600
them they're very well characterized

37
00:01:24,070 --> 00:01:22,479
they also because they're so small

38
00:01:25,990 --> 00:01:24,080

in a small area when you do a

39
00:01:28,550 --> 00:01:26,000
spaceflight experiment you can get a lot

40
00:01:30,550 --> 00:01:28,560
you can fly a lot of these

41
00:01:32,550 --> 00:01:30,560
little fruit flies and so when you get

42
00:01:34,310 --> 00:01:32,560
the data back you have a lot of

43
00:01:37,429 --> 00:01:34,320
information

44
00:01:39,670 --> 00:01:37,439
a lot of samples to do your studies

45
00:01:41,670 --> 00:01:39,680
another thing that i think surprises a

46
00:01:42,550 --> 00:01:41,680
lot of people but but is important to

47
00:01:45,910 --> 00:01:42,560
know

48
00:01:47,510 --> 00:01:45,920
is that fruit flies actually are very

49
00:01:50,630 --> 00:01:47,520
when you look at their dna and you

50
00:01:52,870 --> 00:01:50,640
compare it with dna say of humans

51
00:01:55,109 --> 00:01:52,880
there's a lot of similarity so when you

52
00:01:57,670 --> 00:01:55,119
look at the database which has

53
00:02:00,310 --> 00:01:57,680
the collection of genes which are

54
00:02:03,590 --> 00:02:00,320
important for human functions so when

55
00:02:04,469 --> 00:02:03,600
you get any kind of an anomaly then you

56
00:02:05,990 --> 00:02:04,479
have

57
00:02:08,070 --> 00:02:06,000
you can show a human disease when you

58
00:02:09,749 --> 00:02:08,080
look at that collection and you compare

59
00:02:11,990 --> 00:02:09,759
it against the fruit fly dna you

60
00:02:14,550 --> 00:02:12,000
actually find more than 70 percent

61
00:02:17,350 --> 00:02:14,560
similarity so more than 70 of those

62
00:02:20,390 --> 00:02:17,360
genes are similar so so there's a lot

63
00:02:21,910 --> 00:02:20,400

that you can use the fly uh to do

64
00:02:24,949 --> 00:02:21,920
studies with and then a lot you can

65
00:02:27,589 --> 00:02:24,959
understand about other more complex

66
00:02:30,710 --> 00:02:27,599
systems like the human being and how an

67
00:02:32,550 --> 00:02:30,720
astronaut would experience space flight

68
00:02:35,750 --> 00:02:32,560
so what happens to them when they get to

69
00:02:37,750 --> 00:02:35,760
orbit yeah so when they get to orbit

70
00:02:39,030 --> 00:02:37,760
they're in this unique environment with

71
00:02:42,070 --> 00:02:39,040
no gravity

72
00:02:43,750 --> 00:02:42,080
and uh so amy will tell you in a second

73
00:02:45,190 --> 00:02:43,760
we send up the flies and then they

74
00:02:47,430 --> 00:02:45,200
actually

75
00:02:48,949 --> 00:02:47,440
will lay the eggs and you get another

76
00:02:51,509 --> 00:02:48,959
generation of flies coming out you'll

77
00:02:53,830 --> 00:02:51,519
get hundreds of flies coming out

78
00:02:56,869 --> 00:02:53,840
somewhere around day 12

79
00:02:58,710 --> 00:02:56,879
10 to 12 and then those adults can live

80
00:03:01,190 --> 00:02:58,720
for about six weeks

81
00:03:03,270 --> 00:03:01,200
wow so amy we've seen video of you

82
00:03:05,030 --> 00:03:03,280
working in the lab you've been here

83
00:03:06,630 --> 00:03:05,040
i guess a little over a week now getting

84
00:03:07,670 --> 00:03:06,640
these these flies ready for flight what

85
00:03:10,550 --> 00:03:07,680
have you been doing tell us about your

86
00:03:12,630 --> 00:03:10,560
work so we test extensively back in our

87
00:03:14,149 --> 00:03:12,640
lab at nasa ames in california but

88
00:03:15,910 --> 00:03:14,159

obviously there's always the chance that

89
00:03:17,430 --> 00:03:15,920
something can go wrong during transport

90
00:03:19,830 --> 00:03:17,440
so we've been out here for about a week

91
00:03:21,110 --> 00:03:19,840
doing rechecking all of our space flight

92
00:03:23,110 --> 00:03:21,120
equipment and

93
00:03:24,630 --> 00:03:23,120
monitoring the development of the flies

94
00:03:26,229 --> 00:03:24,640
and luckily everything looks good so

95
00:03:27,910 --> 00:03:26,239
we're to the point now where we're

96
00:03:30,070 --> 00:03:27,920
preparing for our final set of

97
00:03:31,589 --> 00:03:30,080
preparations before we get ready for

98
00:03:33,589 --> 00:03:31,599
launch

99
00:03:35,350 --> 00:03:33,599
how many do you send and how is that

100
00:03:36,949 --> 00:03:35,360
decided

101
00:03:38,869 --> 00:03:36,959
based on a lot of testing is how it's

102
00:03:40,789 --> 00:03:38,879
decided and initially we'll send up 15

103
00:03:42,869 --> 00:03:40,799
flies of each type in separate chambers

104
00:03:44,710 --> 00:03:42,879
within our fly habitat but within about

105
00:03:46,710 --> 00:03:44,720
two weeks we expect to have over 100

106
00:03:48,390 --> 00:03:46,720
flies of each type as sharmila said so

107
00:03:49,750 --> 00:03:48,400
they multiply very quickly in space

108
00:03:51,030 --> 00:03:49,760
which is one of the advantages of using

109
00:03:52,949 --> 00:03:51,040
flies

110
00:03:55,110 --> 00:03:52,959
all right well sharmila as the student

111
00:03:57,190 --> 00:03:55,120
mentor we talked about this is a student

112
00:03:59,670 --> 00:03:57,200
experiment tell us about

113
00:04:01,030 --> 00:03:59,680

i guess the rewards for you and and what

114
00:04:02,630 --> 00:04:01,040
what it means to you when this really

115
00:04:05,910 --> 00:04:02,640
comes to fruition

116
00:04:09,030 --> 00:04:05,920
yes so in a way lori it's uh just like

117
00:04:11,190 --> 00:04:09,040
you have kids and you you teach them and

118
00:04:13,589 --> 00:04:11,200
and you watch them grow

119
00:04:15,670 --> 00:04:13,599
and then when they achieve something you

120
00:04:18,550 --> 00:04:15,680
know you have this sense of pride

121
00:04:20,229 --> 00:04:18,560
it's very similar with students and

122
00:04:22,230 --> 00:04:20,239
you know we have a lot of students come

123
00:04:24,790 --> 00:04:22,240
through the lab and

124
00:04:26,710 --> 00:04:24,800
the 12 that have worked to building this

125
00:04:30,550 --> 00:04:26,720
making this payload happen you know

126
00:04:32,469 --> 00:04:30,560
built designed tested this payload

127
00:04:35,830 --> 00:04:32,479
they've done an amazing job they work

128
00:04:38,070 --> 00:04:35,840
very independently and for me it's that

129
00:04:40,550 --> 00:04:38,080
same sort of sense of pride when i see

130
00:04:43,430 --> 00:04:40,560
this payload come together get ready to

131
00:04:45,590 --> 00:04:43,440
fly and all the hard work they put in um

132
00:04:49,030 --> 00:04:45,600
and one student in particular chaithan

133
00:04:51,030 --> 00:04:49,040
who's here uh is helping amy uh put this

134
00:04:53,990 --> 00:04:51,040
you know he built the box uh towards the

135
00:04:56,870 --> 00:04:54,000
end he finalized it um

136
00:04:59,909 --> 00:04:56,880
yes we see him there and uh

137
00:05:02,310 --> 00:04:59,919
yeah it's it's a great feeling to see

138
00:05:04,070 --> 00:05:02,320

your students succeed and and come

139
00:05:05,830 --> 00:05:04,080
together and work so nicely together as

140
00:05:08,070 --> 00:05:05,840
a team as well is this the first time

141
00:05:09,430 --> 00:05:08,080
we've studied something like this yes

142
00:05:11,510 --> 00:05:09,440
indeed it is

143
00:05:13,189 --> 00:05:11,520
in that it's the first time we actually

144
00:05:15,990 --> 00:05:13,199
have this kind of a high definition

145
00:05:18,550 --> 00:05:16,000
video of fruit flies in space where we

146
00:05:20,469 --> 00:05:18,560
can look at their behavior we'll

147
00:05:22,070 --> 00:05:20,479
also be doing some studies when the

148
00:05:23,430 --> 00:05:22,080
samples come back down on the ground

149
00:05:25,510 --> 00:05:23,440
post flight

150
00:05:27,590 --> 00:05:25,520
those some some of those types of

151
00:05:30,070 --> 00:05:27,600
analysis have been done before but this

152
00:05:31,510 --> 00:05:30,080
high definition video uh of the fruit

153
00:05:33,590 --> 00:05:31,520
flies and the setup that the students

154
00:05:36,310 --> 00:05:33,600
have put together is definitely the

155
00:05:37,830 --> 00:05:36,320
first time uh that we've done this all

156
00:05:39,110 --> 00:05:37,840
right well we look forward to it an

157
00:05:40,629 --> 00:05:39,120
exciting

158
00:05:43,110 --> 00:05:40,639
piece of research there thank you both

159
00:05:44,870 --> 00:05:43,120
for joining us today and that will do it

160
00:05:46,629 --> 00:05:44,880
for us from the kennedy space center in

161
00:05:47,909 --> 00:05:46,639
florida we'll have more reports