1
00:00:07,359 --> 00:00:10,790
this week at nasa

2
00:00:15,589 --> 00:00:13,030
shuttle program managers believe they've

3
00:00:18,070 --> 00:00:15,599
identified the root cause of cracks

4
00:00:20,310 --> 00:00:18,080
found on support beams on space shuttle

5
00:00:22,310 --> 00:00:20,320
discovery's external tank

6
00:00:24,950 --> 00:00:22,320
modifications will be made to these

7
00:00:26,870 --> 00:00:24,960
beams called stringers to offset

8
00:00:29,269 --> 00:00:26,880
material and assembly stresses

9
00:00:31,429 --> 00:00:29,279
discovered through extensive testing and

10
00:00:34,229 --> 00:00:31,439
analysis conducted at the marshall space

11
00:00:38,310 --> 00:00:36,229
this was originally a 90-day mission

12
00:00:39,910 --> 00:00:38,320
over three months and here we are some

13
00:00:42,150 --> 00:00:39,920

seven years later and we're still

14
00:00:44,389 --> 00:00:42,160
exploring this month the twin rovers

15
00:00:47,430 --> 00:00:44,399
spirit and opportunity are completing

16
00:00:49,990 --> 00:00:47,440
their seventh year on mars while spirit

17
00:00:52,229 --> 00:00:50,000
remains immobile and in a slumber

18
00:00:55,110 --> 00:00:52,239
following the harsh martian winter

19
00:00:56,950 --> 00:00:55,120
opportunity rolls on investigating rocks

20
00:00:59,590 --> 00:00:56,960
on the lip of a football field-sized

21
00:01:01,670 --> 00:00:59,600
crater these images taken by the mars

22
00:01:04,229 --> 00:01:01,680
reconnaissance orbiter's high resolution

23
00:01:07,030 --> 00:01:04,239
imaging science experiment the high-rise

24
00:01:10,070 --> 00:01:07,040
camera show opportunity perched on the

25
00:01:12,310 --> 00:01:10,080
western edge of the santa maria crater

26
00:01:14,789 --> 00:01:12,320
the rover is slated to explore santa

27
00:01:16,950 --> 00:01:14,799
maria over the next several weeks

28
00:01:19,670 --> 00:01:16,960
scientists hope that as the martian

29
00:01:22,630 --> 00:01:19,680
landscape warms up spirit may rouse

30
00:01:24,469 --> 00:01:22,640
itself and begin to communicate again

31
00:01:26,870 --> 00:01:24,479
once opportunity is finished at the

32
00:01:29,350 --> 00:01:26,880
santa maria crater it'll resume a

33
00:01:32,149 --> 00:01:29,360
multi-year trek towards endeavor crater

34
00:01:35,270 --> 00:01:32,159
we know there are these clay minerals

35
00:01:37,670 --> 00:01:35,280
present in the rim of endeavor crater

36
00:01:41,190 --> 00:01:37,680
that is suggestive of ancient water on

37
00:01:44,230 --> 00:01:41,200
mars that was of neutral ph

38
00:01:46,469 --> 00:01:44,240

neutral water is what astrobiologists

39
00:01:48,789 --> 00:01:46,479
assess that life started in and so the

40
00:01:50,789 --> 00:01:48,799
fact that there is evidence of ancient

41
00:01:54,870 --> 00:01:50,799
neutral water on mars is very exciting

42
00:01:57,109 --> 00:01:54,880
for the biopotential of the planet

43
00:01:59,030 --> 00:01:57,119
good morning falcons

44
00:02:01,429 --> 00:01:59,040
nasa's associate administrator for

45
00:02:04,310 --> 00:02:01,439
education leland melvin toured three

46
00:02:06,389 --> 00:02:04,320
nasa field centers in california taking

47
00:02:09,270 --> 00:02:06,399
time to speak with staff about the

48
00:02:11,270 --> 00:02:09,280
agency's education goals and their

49
00:02:14,070 --> 00:02:11,280
encouragement of middle school students

50
00:02:16,470 --> 00:02:14,080
to pursue studies in science technology

51
00:02:18,710 --> 00:02:16,480
engineering and mathematics get the

52
00:02:21,350 --> 00:02:18,720
tools in your head the reading the

53
00:02:22,710 --> 00:02:21,360
writing the math the science all the

54
00:02:24,869 --> 00:02:22,720
things your teachers are teaching you

55
00:02:25,990 --> 00:02:24,879
right now so that you can do anything

56
00:02:28,150 --> 00:02:26,000
you want to

57
00:02:30,390 --> 00:02:28,160
anything you put your mind to you can do

58
00:02:32,710 --> 00:02:30,400
hello

59
00:02:34,790 --> 00:02:32,720
during stops at the ames research center

60
00:02:37,350 --> 00:02:34,800
the jet propulsion laboratory and the

61
00:02:39,430 --> 00:02:37,360
dryden flight research center melvin

62
00:02:42,150 --> 00:02:39,440
emphasized support of students to live

63
00:02:45,190 --> 00:02:42,160

their dreams by studying hard focusing

64
00:02:47,190 --> 00:02:45,200
on their goals and avoiding people who

65
00:02:50,550 --> 00:02:47,200
doubt their abilities to attain them but

66
00:02:52,710 --> 00:02:50,560
whatever you dream anything you dream

67
00:02:55,030 --> 00:02:52,720
if you work at it if you believe it if

68
00:02:57,430 --> 00:02:55,040
you put your mind to it you can do it a

69
00:02:59,110 --> 00:02:57,440
former astronaut melvin is responsible

70
00:03:01,509 --> 00:02:59,120
for developing and implementing

71
00:03:04,070 --> 00:03:01,519
education programs that not only

72
00:03:06,149 --> 00:03:04,080
increase public awareness of nasa but

73
00:03:11,589 --> 00:03:06,159
also energized student interest in

74
00:03:17,110 --> 00:03:13,910
it could be every child's dream to have

75
00:03:18,949 --> 00:03:17,120
one but this 60 by 20 foot sandbox at

76
00:03:19,990 --> 00:03:18,959
the glenn research center is not for

77
00:03:22,949 --> 00:03:20,000
play

78
00:03:25,750 --> 00:03:22,959
instead the slope for simulated lunar

79
00:03:28,470 --> 00:03:25,760
operations facility provides researchers

80
00:03:30,949 --> 00:03:28,480
from nasa and the canadian space agency

81
00:03:32,789 --> 00:03:30,959
with moon-like soil to test ways to

82
00:03:35,030 --> 00:03:32,799
harvest resources on the surface of the

83
00:03:36,229 --> 00:03:35,040
moon and other planets

84
00:03:38,390 --> 00:03:36,239
this is where

85
00:03:40,470 --> 00:03:38,400
we learn how to collect the materials

86
00:03:42,949 --> 00:03:40,480
efficiently

87
00:03:44,789 --> 00:03:42,959
in teaming with a canadian mining

88
00:03:46,710 --> 00:03:44,799

company

89
00:03:48,710 --> 00:03:46,720
who brings that kind of expertise that

90
00:03:50,229 --> 00:03:48,720
nasa doesn't normally have this is

91
00:03:52,949 --> 00:03:50,239
essential to

92
00:03:55,270 --> 00:03:52,959
allowing us to collect these materials

93
00:03:57,750 --> 00:03:55,280
and produce mission consumables like

94
00:03:59,429 --> 00:03:57,760
oxygen and water and other things that

95
00:04:01,670 --> 00:03:59,439
would support

96
00:04:04,149 --> 00:04:01,680
human space exploration

97
00:04:06,470 --> 00:04:04,159
at slope researchers can measure the

98
00:04:09,350 --> 00:04:06,480
force and traction of a rover and other

99
00:04:11,509 --> 00:04:09,360
hardware and use that data to develop

100
00:04:15,030 --> 00:04:11,519
and build machines for excavation on the

101
00:04:17,830 --> 00:04:15,040
moon and other future destinations

102
00:04:20,550 --> 00:04:17,840
we believe that using resources on the

103
00:04:22,550 --> 00:04:20,560
moon and mars to sustain the crew rather

104
00:04:24,390 --> 00:04:22,560
than bringing those resources from earth

105
00:04:34,310 --> 00:04:24,400
is the best way to make space travel

106
00:04:38,950 --> 00:04:36,070
middle and high schoolers from southern

107
00:04:41,590 --> 00:04:38,960
california literally elevated ping pong

108
00:04:44,469 --> 00:04:41,600
to new heights as they competed in the

109
00:04:49,350 --> 00:04:44,479
13th annual invention challenge hosted

110
00:04:53,749 --> 00:04:51,670
teams built unique devices to lift the

111
00:04:59,189 --> 00:04:53,759
small lightweight spheres

112
00:05:01,909 --> 00:04:59,199
no paddles required two one go stop

113
00:05:03,749 --> 00:05:01,919

the contest objective is to take a

114
00:05:06,550 --> 00:05:03,759
regular ping-pong ball

115
00:05:07,749 --> 00:05:06,560
and get it from the ground up to a

116
00:05:09,430 --> 00:05:07,759
ceiling that's

117
00:05:15,110 --> 00:05:09,440
two meters tall you can see that in the

118
00:05:19,670 --> 00:05:17,110
each device had to start with a single

119
00:05:22,070 --> 00:05:19,680
operation such as cutting a string or

120
00:05:25,270 --> 00:05:22,080
throwing a switch

121
00:05:27,830 --> 00:05:25,280
secure energy sources and only non-toxic

122
00:05:30,390 --> 00:05:27,840
and safe materials were used twelve

123
00:05:32,550 --> 00:05:30,400
teams of jpl engineers and scientists

124
00:05:35,029 --> 00:05:32,560
also competed against the clock we're

125
00:05:38,150 --> 00:05:35,039
from valley high school this is bullet

126
00:05:43,749 --> 00:05:38,160
billy uh we're basically a modified

127
00:05:49,110 --> 00:05:45,909
our participation went from like one

128
00:05:54,469 --> 00:05:49,120
student team to two student teams to 30

129
00:05:57,830 --> 00:05:56,230
to get students

130
00:06:00,230 --> 00:05:57,840
to

131
00:06:01,749 --> 00:06:00,240
sort of put the books aside a little bit

132
00:06:03,350 --> 00:06:01,759
and get out there and use their

133
00:06:05,189 --> 00:06:03,360
imagination

134
00:06:07,270 --> 00:06:05,199
team building skills

135
00:06:10,150 --> 00:06:07,280
creativity actually building something

136
00:06:11,830 --> 00:06:10,160
testing something having it fail

137
00:06:13,830 --> 00:06:11,840
and then learning from that and

138
00:06:15,350 --> 00:06:13,840

improving the device

139
00:06:17,590 --> 00:06:15,360
it's basically turning all these

140
00:06:19,270 --> 00:06:17,600
students into young engineers at an

141
00:06:21,430 --> 00:06:19,280
early age that's really what it's all

142
00:06:23,670 --> 00:06:21,440
about although requirements vary from

143
00:06:26,070 --> 00:06:23,680
year to year the annual invention

144
00:06:28,230 --> 00:06:26,080
challenge is always fiercely competed

145
00:06:30,550 --> 00:06:28,240
with the same results students learn

146
00:06:32,469 --> 00:06:30,560
that math science and engineering can be

147
00:06:35,270 --> 00:06:32,479
fun

148
00:06:37,350 --> 00:06:35,280
and that's this week at nasa for more on