
CURIOSITY TURNS 10
Could Mars have supported ancient life?

1
00:00:04,150 --> 00:00:02,629
the curiosity rover set out to answer a

2
00:00:06,950 --> 00:00:04,160
big question

3
00:00:09,270 --> 00:00:06,960
could mars have supported ancient life

4
00:00:10,480 --> 00:00:09,280
now we know the answer but there's still

5
00:00:14,910 --> 00:00:10,490
so much more to

6
00:00:18,230 --> 00:00:14,920
[Music]

7
00:00:20,550 --> 00:00:18,240
learn help nasa's curiosity rover safely

8
00:00:23,109 --> 00:00:20,560
explore the surface of mars engineers

9
00:00:25,750 --> 00:00:23,119
here on earth use a nearly identical

10
00:00:28,870 --> 00:00:25,760
sibling named maggie

11
00:00:31,029 --> 00:00:28,880
this full-scale engineering model helps

12
00:00:33,990 --> 00:00:31,039
the team practice operations in the mars

13
00:00:36,069 --> 00:00:34,000

yard at nasa's jet propulsion laboratory

14
00:00:38,709 --> 00:00:36,079
i'm raquel villanueva here with

15
00:00:41,590 --> 00:00:38,719
curiosity deputy project scientist

16
00:00:44,549 --> 00:00:41,600
abigail freeman her team is celebrating

17
00:00:46,069 --> 00:00:44,559
their 10th year on the red planet

18
00:00:47,590 --> 00:00:46,079
where has the rover travel to in the

19
00:00:49,910 --> 00:00:47,600
past decade

20
00:00:52,150 --> 00:00:49,920
well we've spent the last basically 10

21
00:00:55,189 --> 00:00:52,160
years martian mountain climbing

22
00:00:57,590 --> 00:00:55,199
curiosity landed at the base of a big

23
00:01:00,630 --> 00:00:57,600
mountain named mount sharp that is made

24
00:01:02,229 --> 00:01:00,640
of layers of rocks so we're climbing the

25
00:01:04,950 --> 00:01:02,239
mountain to give us a snapshot of

26
00:01:07,670 --> 00:01:04,960
martian history we've driven about 17

27
00:01:10,149 --> 00:01:07,680
and a half miles and more impressively

28
00:01:12,390 --> 00:01:10,159
we've climbed over 2000 feet in

29
00:01:14,310 --> 00:01:12,400
elevation up the mountain we're all the

30
00:01:17,270 --> 00:01:14,320
way up in these hills now it's pretty

31
00:01:20,550 --> 00:01:17,280
spectacular with all that climbing how

32
00:01:22,310 --> 00:01:20,560
is curiosity doing pretty good actually

33
00:01:24,149 --> 00:01:22,320
you know all of our science instruments

34
00:01:25,990 --> 00:01:24,159
are working just about as good as they

35
00:01:27,670 --> 00:01:26,000
did when we landed we have nearly our

36
00:01:29,510 --> 00:01:27,680
full capabilities

37
00:01:31,429 --> 00:01:29,520
the arm and the drill and the rover

38
00:01:32,950 --> 00:01:31,439

they're a little bit arthritic so we

39
00:01:35,429 --> 00:01:32,960
have to be a little bit gentle when we

40
00:01:37,270 --> 00:01:35,439
use them and our wheels are a little bit

41
00:01:39,270 --> 00:01:37,280
beat up the wheels on maggie look great

42
00:01:41,270 --> 00:01:39,280
but we have some some test wheels that

43
00:01:43,830 --> 00:01:41,280
we've really destroyed the wheels on the

44
00:01:46,710 --> 00:01:43,840
rover are somewhere between these two

45
00:01:49,350 --> 00:01:46,720
you know we just drilled our 35th sample

46
00:01:51,109 --> 00:01:49,360
the other week so still doing amazing

47
00:01:53,030 --> 00:01:51,119
science and how do you decide where the

48
00:01:54,950 --> 00:01:53,040
rover is going to go do you work with

49
00:01:57,350 --> 00:01:54,960
other nasa missions you know the data

50
00:01:59,429 --> 00:01:57,360
from the mars orbiters have been really

51
00:02:01,429 --> 00:01:59,439
helpful the spectrometers that's the

52
00:02:03,670 --> 00:02:01,439
kind of instrument on on odyssey and

53
00:02:05,670 --> 00:02:03,680
mars reconnaissance orbiter have told us

54
00:02:07,749 --> 00:02:05,680
where the interesting minerals are and

55
00:02:10,070 --> 00:02:07,759
where the best places to go to look at

56
00:02:11,910 --> 00:02:10,080
changing environments are and then in

57
00:02:14,470 --> 00:02:11,920
particular the cameras on the mars

58
00:02:17,110 --> 00:02:14,480
reconnaissance orbiter they're so good

59
00:02:19,430 --> 00:02:17,120
and they're so helpful at allowing us to

60
00:02:20,550 --> 00:02:19,440
find the safest way that we can climb

61
00:02:22,229 --> 00:02:20,560
this mountain

62
00:02:24,309 --> 00:02:22,239
what would you say is the biggest

63
00:02:26,390 --> 00:02:24,319

discovery your team has made you know

64
00:02:29,190 --> 00:02:26,400
curiosity was sent to mars in order to

65
00:02:31,350 --> 00:02:29,200
answer a really big question did mars

66
00:02:34,070 --> 00:02:31,360
have all of the ingredients that we know

67
00:02:36,550 --> 00:02:34,080
life needed and 10 years later not only

68
00:02:37,430 --> 00:02:36,560
have we given that answer a definitive

69
00:02:38,790 --> 00:02:37,440
yes

70
00:02:41,589 --> 00:02:38,800
but we've also seen that those

71
00:02:43,270 --> 00:02:41,599
ingredients were around for tens of

72
00:02:45,750 --> 00:02:43,280
millions of years

73
00:02:47,589 --> 00:02:45,760
and what's next for curiosity we can see

74
00:02:49,350 --> 00:02:47,599
from orbit that we're getting to a place

75
00:02:51,350 --> 00:02:49,360
in the mountain that likely records a

76
00:02:53,270 --> 00:02:51,360
pretty dramatic change in the sorts of

77
00:02:55,750 --> 00:02:53,280
environments that were around you know

78
00:02:57,990 --> 00:02:55,760
the lakes that once filled gale started

79
00:03:00,149 --> 00:02:58,000
to dry out and we're getting to that

80
00:03:02,550 --> 00:03:00,159
period in time so we're really

81
00:03:05,670 --> 00:03:02,560
interested in answering how long did

82
00:03:07,670 --> 00:03:05,680
these habitable environments persist as

83
00:03:10,710 --> 00:03:07,680
mars and gale crater went through these

84
00:03:13,190 --> 00:03:10,720
pretty big climate changes i just can't

85
00:03:14,710 --> 00:03:13,200
wait to see what's next we've seen hints

86
00:03:17,589 --> 00:03:14,720
that the rocks are going to be very

87
00:03:19,350 --> 00:03:17,599
different very soon and so i'm really

88
00:03:21,270 --> 00:03:19,360

curious what we're going to find

89
00:03:23,350 --> 00:03:21,280
well that is an exciting new chapter for

90
00:03:25,830 --> 00:03:23,360
you and congratulations on 10 years

91
00:03:28,390 --> 00:03:25,840
thanks abigail thanks so much

92
00:03:32,149 --> 00:03:28,400
to get the latest updates follow at nasa

93
00:03:33,750 --> 00:03:32,159
jpl and at nasa mars on social media or

94
00:03:37,410 --> 00:03:33,760
take a deeper dive on the mission