1
00:00:06,389 --> 00:00:04,230
[Music]

2
00:00:09,190 --> 00:00:06,399
the terrain around the curiosity rover

3
00:00:11,910 --> 00:00:09,200
is beginning to look very different

4
00:00:15,110 --> 00:00:11,920
the rover has driven over 16 miles since

5
00:00:18,310 --> 00:00:15,120
landing in gale crater in 2012.

6
00:00:19,910 --> 00:00:18,320
this view is from 1500 feet above our

7
00:00:22,310 --> 00:00:19,920
landing site

8
00:00:24,150 --> 00:00:22,320
we're climbing the side of mount sharp a

9
00:00:24,850 --> 00:00:24,160
very tall mountain in the center of the

10
00:00:29,669 --> 00:00:24,860
crater

11
00:00:31,669 --> 00:00:29,679
[Music]

12
00:00:33,830 --> 00:00:31,679
all of this dark material is martian

13
00:00:35,590 --> 00:00:33,840

sand that's made up of broken bits of

14
00:00:37,430 --> 00:00:35,600
volcanic rock

15
00:00:38,869 --> 00:00:37,440
can you see the ripples that were shaped

16
00:00:41,590 --> 00:00:38,879
by the wind

17
00:00:45,110 --> 00:00:41,600
we had to drive around this massive sand

18
00:00:47,590 --> 00:00:45,120
sheet as we climbed mount sharp

19
00:00:49,510 --> 00:00:47,600
look how clear the air is

20
00:00:52,310 --> 00:00:49,520
that's because it's winter when there's

21
00:00:54,630 --> 00:00:52,320
less dust in the atmosphere you can see

22
00:00:57,750 --> 00:00:54,640
all the way to the rim of gale crater

23
00:00:59,349 --> 00:00:57,760
which is about 20 miles away

24
00:01:01,189 --> 00:00:59,359
we spent the last several years

25
00:01:03,189 --> 00:01:01,199
investigating clay-rich rocks that

26
00:01:05,030 --> 00:01:03,199
formed in lakes

27
00:01:07,270 --> 00:01:05,040
but now we're entering a region where

28
00:01:08,950 --> 00:01:07,280
rocks are filled with salty minerals

29
00:01:11,590 --> 00:01:08,960
called sulfates

30
00:01:14,149 --> 00:01:11,600
these minerals form in drier conditions

31
00:01:17,990 --> 00:01:14,159
so we think this area might show us how

32
00:01:21,590 --> 00:01:18,000
the ancient martian climate was changing

33
00:01:24,630 --> 00:01:21,600
we're starting to see lots of very cool

34
00:01:26,710 --> 00:01:24,640
knobbly textured rocks like these

35
00:01:28,170 --> 00:01:26,720
we think these veins and nodules were

36
00:01:32,789 --> 00:01:28,180
created by groundwater

37
00:01:35,190 --> 00:01:32,799
[Music]

38
00:01:37,510 --> 00:01:35,200

here we recently drilled our 30-second

39
00:01:39,910 --> 00:01:37,520
sample of the mission by studying the

40
00:01:41,670 --> 00:01:39,920
chemicals and minerals in this rock we

41
00:01:43,590 --> 00:01:41,680
can learn how the ancient environment

42
00:01:48,789 --> 00:01:43,600
was changing as we go from the clay

43
00:01:52,230 --> 00:01:50,870
and these hills are different from

44
00:01:53,270 --> 00:01:52,240
anything we've seen on the lower

45
00:01:55,510 --> 00:01:53,280
mountain

46
00:01:59,190 --> 00:01:55,520
they're rounded unlike the ridges and

47
00:02:02,630 --> 00:02:00,709
now let's look ahead to where we're

48
00:02:04,789 --> 00:02:02,640
going

49
00:02:08,229 --> 00:02:04,799
we'll soon be entering a narrow valley

50
00:02:10,949 --> 00:02:08,239
that should make for some amazing images

51
00:02:12,390 --> 00:02:10,959
on the left is rafael navarro mountain

52
00:02:14,790 --> 00:02:12,400
named after one of the mission

53
00:02:15,680 --> 00:02:14,800
scientists who passed away in january of

54
00:02:21,270 --> 00:02:15,690
2021

55
00:02:27,350 --> 00:02:24,470
this nearby hill is huge

56
00:02:29,670 --> 00:02:27,360
it's about the size of a four-story

57
00:02:31,910 --> 00:02:29,680
building

58
00:02:34,869 --> 00:02:31,920
this changing terrain is more than just

59
00:02:37,670 --> 00:02:34,879
fun to look at it can teach us how mars

60
00:02:39,589 --> 00:02:37,680
lost its water over time

61
00:02:41,830 --> 00:02:39,599
how long did conditions that were