



**Best anniversary gift *ever*—
a two-year mission extension!**

1
00:00:00,566 --> 00:00:04,571
(Musical intro)

2
00:00:05,104 --> 00:00:08,107
NASA's Mars rover Curiosity
celebrates its fourth year

3
00:00:08,140 --> 00:00:11,377
on Mars since landing at
Gale crater on August 5, 2012.

4
00:00:11,410 --> 00:00:14,013
Let's take a quick look
back at the past year.

5
00:00:14,046 --> 00:00:15,181
[Whoosh]

6
00:00:15,214 --> 00:00:17,550
The rover operations team
at JPL has hit its stride.

7
00:00:17,583 --> 00:00:19,652
Four years of experience
allows them to plan

8
00:00:19,685 --> 00:00:22,422
challenging and complex
activities much faster.

9
00:00:22,455 --> 00:00:25,458
It used to take a month to
drill and analyze a rock sample.

10
00:00:25,491 --> 00:00:26,793
Now it takes just a week.

11
00:00:26,826 --> 00:00:27,660
[Whoosh]

12

00:00:27,694 --> 00:00:29,095

In spite of the
expected wear and tear,

13

00:00:29,128 --> 00:00:32,532

Curiosity is fully functional
and as busy as ever.

14

00:00:32,565 --> 00:00:34,534

The drill, the sample
processing system,

15

00:00:34,567 --> 00:00:36,769

and every science
instrument continue to do

16

00:00:36,802 --> 00:00:38,504

what they were designed to do.

17

00:00:38,537 --> 00:00:40,940

The wheels are slowly
gettin' beat up, but testing

18

00:00:40,973 --> 00:00:43,910

of spare wheels at JPL has shown
that with careful driving,

19

00:00:43,943 --> 00:00:46,446

they will last long enough to
get the rover to all the places

20

00:00:46,479 --> 00:00:48,981

on Mount Sharp that the
science team wishes to explore.

21

00:00:49,014 --> 00:00:49,815

[Whoosh]

22

00:00:49,848 --> 00:00:51,084

Much of the past
year was spent on an

23

00:00:51,117 --> 00:00:53,719

obstacle course of sorts
on lower Mount Sharp.

24

00:00:53,752 --> 00:00:56,656

Our athletic rover climbed
over a rocky plateau and

25

00:00:56,689 --> 00:00:59,258

had to wind its way through
the Bagnold Dune field,

26

00:00:59,291 --> 00:01:01,928

a stretch of beautiful and
currently active sand dunes

27

00:01:01,961 --> 00:01:04,564

that skirt the lower
mountain, blocking Curiosity

28

00:01:04,597 --> 00:01:07,400

from heading straight
toward higher elevations.

29

00:01:07,433 --> 00:01:09,535

But the rover reached
a spot where it could

30

00:01:09,568 --> 00:01:10,603

drive around the dunes,

31

00:01:10,636 --> 00:01:12,271

making a long-awaited
left turn

32

00:01:12,304 --> 00:01:14,107

and beginning a
more aggressive climb.

33

00:01:14,140 --> 00:01:15,041
[Whoosh]

34

00:01:15,075 --> 00:01:16,876
As Curiosity crossed the
Naukluft Plateau,

35

00:01:16,909 --> 00:01:19,112
it studied fractures in
the ancient sandstone

36

00:01:19,145 --> 00:01:20,613
where groundwater
once flowed

37

00:01:20,646 --> 00:01:22,248
and permeated the
surrounding rock,

38

00:01:22,281 --> 00:01:24,217
causing changes in
chemistry that created

39

00:01:24,250 --> 00:01:26,386
light-toned haloes
around the fractures.

40

00:01:27,052 --> 00:01:28,888
The science team compared
rock powder drilled from

41

00:01:28,921 --> 00:01:31,457
the halo with that drilled
from unaltered rock.

42

00:01:31,490 --> 00:01:33,526
The haloed regions were

enriched in silica

43

00:01:33,559 --> 00:01:35,428

but depleted in other
chemical elements.

44

00:01:35,461 --> 00:01:38,531

It appears that groundwater
transported chemical elements

45

00:01:38,564 --> 00:01:41,501

from some rock layers and
deposited them in others.

46

00:01:41,534 --> 00:01:42,001

[Whoosh]

47

00:01:42,901 --> 00:01:44,604

Recently, NASA gave
Curiosity the best

48

00:01:44,637 --> 00:01:46,906

anniversary gift it could
hope for - an extension of

49

00:01:46,939 --> 00:01:49,208

its mission for at
least two more years.

50

00:01:49,241 --> 00:01:50,910

We'll use it to reach
progressively higher

51

00:01:50,943 --> 00:01:52,512

and younger rocks
on Mount Sharp,

52

00:01:52,545 --> 00:01:55,148

including rock types we've
not yet explored.

53

00:01:55,181 --> 00:01:56,816

We can't wait to see
how the story of the