1
00:00:00,000 --> 00:00:05,005
[music throughout]

2
00:00:05,005 --> 00:00:07,941
In April 2018, the Hubble Space
Telescope premiered this image

3
00:00:07,941 --> 00:00:12,212
of the Lagoon Nebula

4
00:00:12,212 --> 00:00:19,019
The image honors Hubble's 28th
year in orbit.

5
00:00:19,019 --> 00:00:22,022
Even after 27 years, Hubble
continues to further humanity's

6
00:00:22,022 --> 00:00:26,026
knowledge of the universe

7
00:00:26,026 --> 00:00:29,529
Here are several science
achievements from Hubble's

8
00:00:29,529 --> 00:00:33,534
latest year of observations.

9
00:00:33,534 --> 00:00:36,970
Within our own solar system,

10
00:00:36,970 --> 00:00:42,042
Hubble observed Neptune's shrinking storm,

11
00:00:42,042 --> 00:00:46,046
an asteroid that split in half
5000 years ago and is sprouting

12

00:00:46,046 --> 00:00:48,280
a comet tail,

13
00:00:55,060 --> 00:01:02,320
and the farthest active inbound
comet, nicknamed "K2."

14
00:01:02,329 --> 00:01:05,332
Exploring beyond our solar
system,

15
00:01:05,332 --> 00:01:08,502
Hubble astronomers discovered
many new characteristics of

16
00:01:08,502 --> 00:01:11,004
planets around other stars,

17
00:01:11,004 --> 00:01:14,508
from finding that water is
common in these "exoplanet"

18
00:01:14,508 --> 00:01:15,842
atmospheres,

19
00:01:15,842 --> 00:01:19,846
to finding different types of
atmospheres among large planets

20
00:01:19,846 --> 00:01:22,516
called "hot Jupiters."

21
00:01:22,516 --> 00:01:26,019
Hubble observed four Earth-sized
planets in the habitable zone of

22
00:01:26,019 --> 00:01:27,521
the star TRAPPIST-1.

23

00:01:27,521 --> 00:01:31,358
The observations showed no signs
of thick, puffy atmospheres on

24
00:01:31,358 --> 00:01:33,927
at least three planets,

25
00:01:33,927 --> 00:01:37,531
increasing the likelihood that
these are rocky,

26
00:01:37,540 --> 00:01:40,060
terrestrial planets.

27
00:01:41,540 --> 00:01:45,539
Hubble observed visible light
from the first identified source

28
00:01:45,539 --> 00:01:51,044
of gravitational waves, created
when two neutron stars collided.

29
00:01:51,044 --> 00:01:55,048
With Hubble data, astronomers
used graviational lensing to

30
00:01:55,048 --> 00:02:01,421
determine the mass of a white
dwarf star.

31
00:02:01,421 --> 00:02:08,996
Hubble observed a massive dying
star being reborn

32
00:02:08,996 --> 00:02:13,633
as a black hole.

33
00:02:13,633 --> 00:02:17,671
Hubble witnessed light from a
supernova explosion reflecting

34
00:02:17,671 --> 00:02:25,679
off a dust cloud, which created
this "light echo."

35
00:02:25,679 --> 00:02:30,017
Astronomers using Hubble refined
the Hubble constant.

36
00:02:30,017 --> 00:02:34,354
This revealed that the expansion
of our universe is accelerating

37
00:02:34,354 --> 00:02:38,025
even faster than expected.

38
00:02:38,025 --> 00:02:42,029
And Hubble premiered a
360-degree fly-through of the

39
00:02:42,029 --> 00:02:45,365
Orion Nebula...

40
00:02:45,365 --> 00:02:49,536
so that those of us down on
Earth can imagine

41
00:02:49,536 --> 00:02:52,973
flying amongst the stars.

42
00:02:52,973 --> 00:02:59,046
[music]

43
00:02:59,046 --> 00:03:06,653
For more information about
Hubble's scientific discoveries