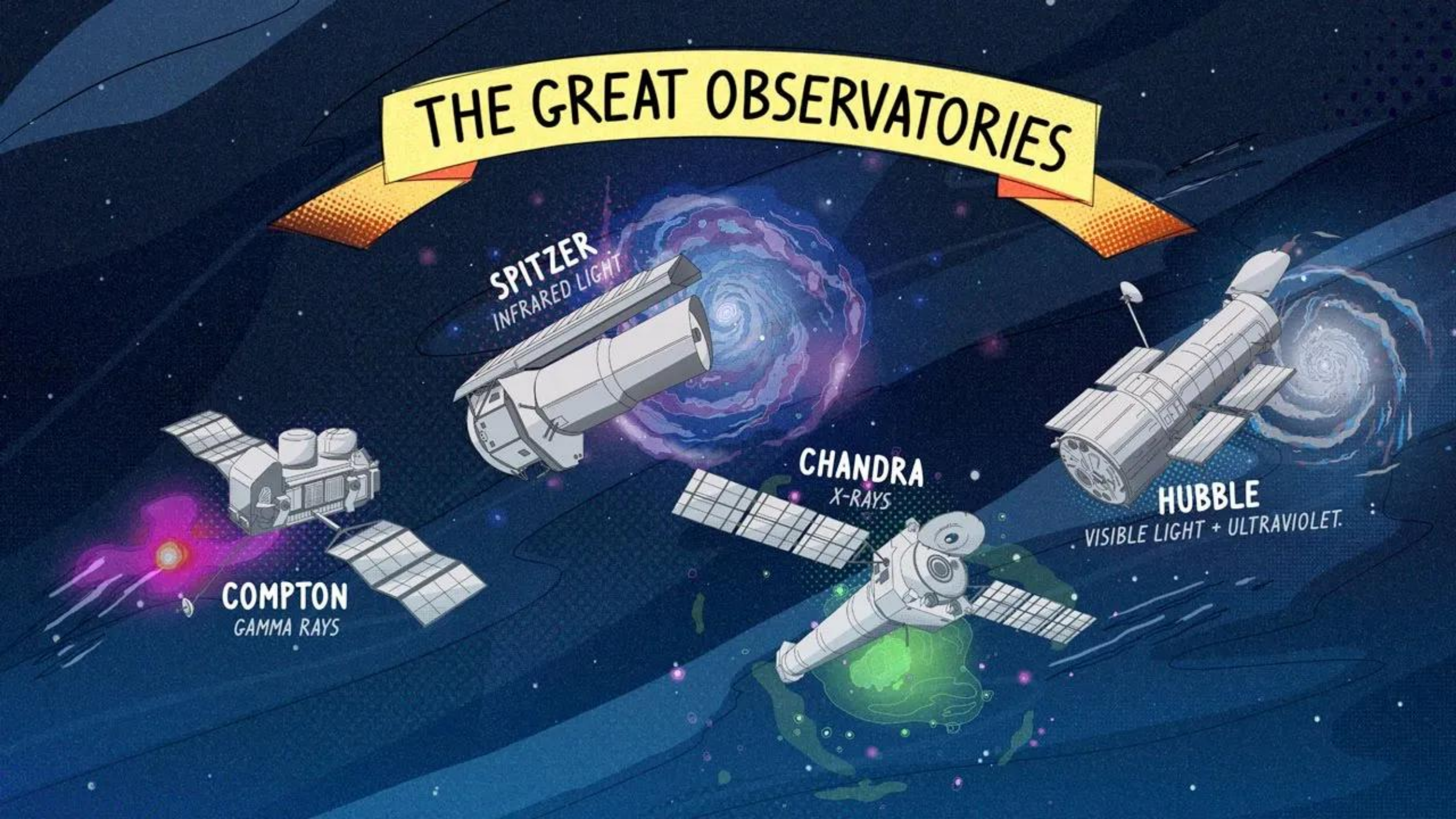
THE GREAT OBSERVATORIES
SPITZER
INFRARED LIGHT
CHANDRA
X-RAYS
HUBBLE
VISIBLE LIGHT + ULTRAVIOLET.
COMPTON
GAMMA RAYS

1
00:00:00,278 --> 00:00:01,210
[sweeping dramatic music]

2
00:00:01,210 --> 00:00:02,530
>> Narrator: For most of history,

3
00:00:02,530 --> 00:00:04,540
much of the sky was hidden.

4
00:00:04,540 --> 00:00:08,090
For there are many kinds of
light our eyes can't see.

5
00:00:08,090 --> 00:00:10,940
And despite the use of
powerful technologies

6
00:00:10,940 --> 00:00:12,780
that made this light visible,

7
00:00:12,780 --> 00:00:15,830
the sky remained veiled
because our atmosphere

8
00:00:15,830 --> 00:00:18,950
blocked much of the light
from reaching the ground.

9
00:00:18,950 --> 00:00:20,820
But there was a plan.

10
00:00:20,820 --> 00:00:23,320
Four special telescopes that could fly

11
00:00:23,320 --> 00:00:26,640
above the atmosphere and into space,

12
00:00:26,640 --> 00:00:29,190

where they could see the
universe more clearly.

13
00:00:29,190 --> 00:00:31,700
Each one gifted with special abilities

14
00:00:31,700 --> 00:00:33,860
to see part of the hidden light.

15
00:00:33,860 --> 00:00:35,760
Joining forces, they would reveal

16
00:00:35,760 --> 00:00:38,960
a more complete picture
of the universe around us.

17
00:00:38,960 --> 00:00:42,463
They were The Great Observatories.

18
00:00:42,463 --> 00:00:45,590
[dramatic music]

19
00:00:45,590 --> 00:00:46,917
[gentle music]

20
00:00:46,917 --> 00:00:49,270
The Spitzer Space Telescope.

21
00:00:49,270 --> 00:00:51,690
Created to see the infrared universe.

22
00:00:51,690 --> 00:00:53,780
But because much of the infrared light

23
00:00:53,780 --> 00:00:57,290
comes from relatively cool
objects in the cosmos,

24

00:00:57,290 --> 00:00:59,830
there was one condition on which Spitzer's

25
00:00:59,830 --> 00:01:01,600
special power rested.

26
00:01:01,600 --> 00:01:03,760
It had to be very, very,

27
00:01:03,760 --> 00:01:06,410
almost ridiculously cold in order

28
00:01:06,410 --> 00:01:08,370
to see the infrared world.

29
00:01:08,370 --> 00:01:11,120
Otherwise, the telescope's own heat,

30
00:01:11,120 --> 00:01:12,580
and that of the earth around it,

31
00:01:12,580 --> 00:01:15,430
would overwhelm its special abilities.

32
00:01:15,430 --> 00:01:17,640
But Spitzer was up to the challenge.

33
00:01:17,640 --> 00:01:19,960
Once launched into space, high above

34
00:01:19,960 --> 00:01:21,980
the infrared absorbing atmosphere,

35
00:01:21,980 --> 00:01:26,023
it journeyed far from the
warm, infrared glow of Earth.

36
00:01:27,520 --> 00:01:31,220

It shielded itself from sweltering sun

37
00:01:31,220 --> 00:01:35,060
and chilled out using a
special cooling contraption

38
00:01:35,060 --> 00:01:36,440
it had brought.

39
00:01:36,440 --> 00:01:40,290
And as Spitzer cooled
down, the infrared sky

40
00:01:40,290 --> 00:01:42,853
came into view like never before.

41
00:01:43,758 --> 00:01:46,360
With its power of infrared sight,

42
00:01:46,360 --> 00:01:49,670
Spitzer could see through
clouds of dust in space

43
00:01:49,670 --> 00:01:53,230
to show the places where stars are born.

44
00:01:53,230 --> 00:01:57,550
Spitzer even studied alien
planets in other solar systems.

45
00:01:57,550 --> 00:02:01,270
Something even it's creaters
never designed it to do!

46
00:02:01,270 --> 00:02:03,710
Together with the other
Great Observatories,

47
00:02:03,710 --> 00:02:06,830

Spitzer helped reveal many
distant and fascinating

48
00:02:06,830 --> 00:02:09,083
places across the universe.

49
00:02:10,180 --> 00:02:13,090
But after several years, Spitzer's special

50
00:02:13,090 --> 00:02:15,930
cooling contraption ran out of juice,

51
00:02:15,930 --> 00:02:17,970
meaning it would soon warm up.

52
00:02:17,970 --> 00:02:21,400
Would this mean the end of
our hero's observing days?

53
00:02:21,400 --> 00:02:23,240
Not Spitzer!

54
00:02:23,240 --> 00:02:25,370
There was still plenty of infrared things

55
00:02:25,370 --> 00:02:27,490
it could see just fine.

56
00:02:27,490 --> 00:02:30,453
And it just wouldn't, just couldn't quit.

57
00:02:32,230 --> 00:02:35,220
Many years later, having
revealed a whole side

58
00:02:35,220 --> 00:02:38,340
of the universe we would
not have seen without it,

59
00:02:38,340 --> 00:02:42,600
NASA's infrared Great Observatory retired.

60
00:02:42,600 --> 00:02:44,830
But, because of their success,

61
00:02:44,830 --> 00:02:48,140
Spitzer and its space
telescope superfriends

62
00:02:48,140 --> 00:02:51,810
would not be the last of
The Great Observatories.

63
00:02:51,810 --> 00:02:56,670
Soon, another, powerful
infrared observer would follow,