1
00:00:06,150 --> 00:00:04,550
[Music]

2
00:00:08,390 --> 00:00:06,160
the universe

3
00:00:11,830 --> 00:00:08,400
for all we have learned about it we have

4
00:00:14,629 --> 00:00:11,840
only just begun to reveal its secrets

5
00:00:16,870 --> 00:00:14,639
what are dark matter and dark energy

6
00:00:18,550 --> 00:00:16,880
how common are planetary arrangements

7
00:00:20,550 --> 00:00:18,560
like our own

8
00:00:23,429 --> 00:00:20,560
and how many planets in our galaxy have

9
00:00:25,910 --> 00:00:23,439
the potential to harbor life

10
00:00:27,750 --> 00:00:25,920
the nancy grace roman space telescope

11
00:00:29,189 --> 00:00:27,760
will help answer these fundamental

12
00:00:32,150 --> 00:00:29,199
questions

13
00:00:34,549 --> 00:00:32,160

formerly known as wfirst the roman space

14
00:00:37,430 --> 00:00:34,559
telescope is similar to hubble but with

15
00:00:38,790 --> 00:00:37,440
the benefit of 30 years of technological

16
00:00:40,470 --> 00:00:38,800
improvement

17
00:00:42,069 --> 00:00:40,480
each image from its wide field

18
00:00:44,709 --> 00:00:42,079
instrument will have the depth and

19
00:00:48,470 --> 00:00:44,719
clarity of hubble's best but capture a

20
00:00:50,630 --> 00:00:48,480
sky area 100 times larger

21
00:00:53,110 --> 00:00:50,640
the roman space telescope will take the

22
00:00:54,229 --> 00:00:53,120
lead in exploring dark energy and dark

23
00:00:56,630 --> 00:00:54,239
matter

24
00:00:59,029 --> 00:00:56,640
we only know they exist by their effects

25
00:01:02,150 --> 00:00:59,039
on observable matter yet these two

26
00:01:04,070 --> 00:01:02,160
mysterious components make up 95 of the

27
00:01:07,429 --> 00:01:04,080
universe

28
00:01:10,149 --> 00:01:07,439
the roman space telescope's powerful 2.4

29
00:01:11,910 --> 00:01:10,159
meter mirror an enormous field of view

30
00:01:13,990 --> 00:01:11,920
will also help us in the search for

31
00:01:15,830 --> 00:01:14,000
planets beyond our solar system or

32
00:01:17,590 --> 00:01:15,840
exoplanets

33
00:01:20,390 --> 00:01:17,600
it will watch for gravitational

34
00:01:22,550 --> 00:01:20,400
microlensing events caused when a planet

35
00:01:24,230 --> 00:01:22,560
and its host star pass in front of a

36
00:01:26,469 --> 00:01:24,240
background star

37
00:01:28,630 --> 00:01:26,479
such events are rare so catching them

38
00:01:30,310 --> 00:01:28,640

requires watching large swaths of the

39
00:01:32,789 --> 00:01:30,320
sky

40
00:01:34,870 --> 00:01:32,799
to deepen its study of exoplanets the

41
00:01:37,429 --> 00:01:34,880
roman space telescope will house a

42
00:01:39,670 --> 00:01:37,439
beyond state-of-the-art coronagraph that

43
00:01:42,389 --> 00:01:39,680
will directly image and analyze

44
00:01:44,630 --> 00:01:42,399
neptune-sized planets in orbit slightly

45
00:01:48,149 --> 00:01:44,640
larger than earth's a dramatic

46
00:01:50,710 --> 00:01:48,159
improvement over current capabilities

47
00:01:52,789 --> 00:01:50,720
the nancy grace roman space telescope

48
00:01:55,670 --> 00:01:52,799
will help us answer many of the biggest

49
00:01:57,749 --> 00:01:55,680
cosmic questions its wide field view and

50
00:02:00,149 --> 00:01:57,759
coronagraph will complement missions

51
00:02:02,149 --> 00:02:00,159
like nasa's james webb space telescope

52
00:02:04,789 --> 00:02:02,159
and transiting exoplanet survey

53
00:02:06,950 --> 00:02:04,799
satellite tess

54
00:02:09,510 --> 00:02:06,960
the roman space telescope will be an