



1  
00:00:07,670 --> 00:00:05,430  
this is your telescope

2  
00:00:10,629 --> 00:00:07,680  
an engineering marvel

3  
00:00:13,589 --> 00:00:10,639  
an exploration powerhouse

4  
00:00:15,749 --> 00:00:13,599  
use it to look back in time and explore

5  
00:00:17,910 --> 00:00:15,759  
the first galaxies that formed after the

6  
00:00:20,070 --> 00:00:17,920  
big bang

7  
00:00:21,910 --> 00:00:20,080  
to peer into atmospheres of planets

8  
00:00:25,109 --> 00:00:21,920  
orbiting the stars

9  
00:00:27,170 --> 00:00:25,119  
it's your eyepiece to the uncharted

10  
00:00:31,509 --> 00:00:27,180  
unknown and unimagined

11  
00:00:35,510 --> 00:00:32,389  
this

12  
00:00:37,750 --> 00:00:35,520  
is the largest most complex and

13  
00:00:39,030 --> 00:00:37,760

challenging space telescope ever

14

00:00:40,709 --> 00:00:39,040

constructed

15

00:00:43,750 --> 00:00:40,719

it will change our understanding of the

16

00:00:50,900 --> 00:00:43,760

universe and our place in it

17

00:00:50,910 --> 00:00:55,270

[Music]

18

00:01:00,229 --> 00:00:57,670

equipped with the largest primary mirror

19

00:01:03,029 --> 00:01:00,239

ever to be flown in space at six and a

20

00:01:05,109 --> 00:01:03,039

half meters it's more than six times the

21

00:01:08,710 --> 00:01:05,119

size of the hubble space telescope

22

00:01:13,990 --> 00:01:11,030

webs four cutting edge infrared

23

00:01:16,149 --> 00:01:14,000

instruments and cameras operate at super

24

00:01:18,149 --> 00:01:16,159

cold temperatures

25

00:01:19,580 --> 00:01:18,159

temperatures colder than the surface of

26

00:01:22,149 --> 00:01:19,590

pluto

27

00:01:24,230 --> 00:01:22,159

[Music]

28

00:01:27,109 --> 00:01:24,240

getting this cold is done with the help

29

00:01:29,510 --> 00:01:27,119

of the largest sun shield ever flown

30

00:01:31,990 --> 00:01:29,520

a five-layer tennis court-sized sun

31

00:01:36,650 --> 00:01:32,000

shield that blocks heat from the sun

32

00:01:40,789 --> 00:01:38,950

[Music]

33

00:01:42,789 --> 00:01:40,799

webb will be the first telescope to

34

00:01:45,270 --> 00:01:42,799

detect light from the most distant

35

00:01:47,749 --> 00:01:45,280

galaxies in the universe

36

00:01:49,910 --> 00:01:47,759

these first galaxies formed about 13 and

37

00:01:52,469 --> 00:01:49,920

a half billion years ago

38

00:01:54,389 --> 00:01:52,479

only 300 or so million years after the

39

00:01:56,870 --> 00:01:54,399

big bang

40

00:01:58,870 --> 00:01:56,880

webb carries advanced technologies to

41

00:02:01,590 --> 00:01:58,880

tackle some of the most fundamental

42

00:02:03,190 --> 00:02:01,600

questions about the universe

43

00:02:04,469 --> 00:02:03,200

how did the first galaxies form and

44

00:02:06,149 --> 00:02:04,479

evolve

45

00:02:09,109 --> 00:02:06,159

are there chemical signatures of the

46

00:02:15,910 --> 00:02:09,119

building blocks of life on other worlds

47

00:02:19,990 --> 00:02:17,750

launching such a large telescope into

48

00:02:21,350 --> 00:02:20,000

space is an incredible engineering

49

00:02:22,630 --> 00:02:21,360

challenge

50

00:02:24,949 --> 00:02:22,640

fully deployed

51  
00:02:26,470 --> 00:02:24,959  
web is too large to fit inside any

52  
00:02:28,949 --> 00:02:26,480  
rocket fairing

53  
00:02:31,830 --> 00:02:28,959  
engineers designed it to be folded like

54  
00:02:34,869 --> 00:02:31,840  
origami to squeeze inside the european

55  
00:02:39,509 --> 00:02:34,879  
space agency's 5 meter diameter aryan 5

56  
00:02:44,150 --> 00:02:41,589  
after launch controllers on the ground

57  
00:02:47,589 --> 00:02:44,160  
deploy web remotely

58  
00:02:49,750 --> 00:02:47,599  
deployment is an intricate ballet

59  
00:02:51,990 --> 00:02:49,760  
for nearly three weeks controllers

60  
00:02:54,470 --> 00:02:52,000  
carefully unfold web

61  
00:02:56,470 --> 00:02:54,480  
after this delicate dance webb's golden

62  
00:02:58,869 --> 00:02:56,480  
mirrors are precisely aligned using

63  
00:02:59,910 --> 00:02:58,879

motors behind each hexagonal mirror

64

00:03:02,869 --> 00:02:59,920

segment

65

00:03:04,390 --> 00:03:02,879

adjusting them to form one perfect

66

00:03:06,470 --> 00:03:04,400

mirror

67

00:03:09,670 --> 00:03:06,480

once the instruments are fully cooled

68

00:03:12,470 --> 00:03:09,680

the exploration will begin

69

00:03:14,710 --> 00:03:12,480

webb is a technological challenge like

70

00:03:16,710 --> 00:03:14,720

no other born of the efforts of

71

00:03:19,830 --> 00:03:16,720

thousands of people across the united

72

00:03:22,710 --> 00:03:19,840

states canada and europe

73

00:03:23,830 --> 00:03:22,720

the james webb space telescope is your

74

00:03:25,589 --> 00:03:23,840

telescope

75

00:03:28,550 --> 00:03:25,599

use it to explore

76

00:03:29,830 --> 00:03:28,560

to challenge theories to see sites yet

77

00:03:31,110 --> 00:03:29,840

unseen

78

00:03:33,350 --> 00:03:31,120

it's yours

79

00:03:35,830 --> 00:03:33,360

to unfold the beauty and mystery in the