

WAY GALAXY AND CAPTURE IMAGES OF
ANY TRANSITS IT SEES.



1
00:00:10,400 --> 00:00:16,550
hmm

2
00:00:21,189 --> 00:00:18,470
are we alone

3
00:00:24,070 --> 00:00:21,199
that's a question likely asked by anyone

4
00:00:25,429 --> 00:00:24,080
who's ever stared in awe at the bright

5
00:00:28,150 --> 00:00:25,439
night sky

6
00:00:30,710 --> 00:00:28,160
until recently astronomers knew only of

7
00:00:34,549 --> 00:00:30,720
the planets in our solar system

8
00:00:37,350 --> 00:00:34,559
then in 1995 came the discovery of the

9
00:00:38,549 --> 00:00:37,360
first planets orbiting stars other than

10
00:00:41,750 --> 00:00:38,559
our sun

11
00:00:44,389 --> 00:00:41,760
could they like earth harbor life we now

12
00:00:46,709 --> 00:00:44,399
know of over 300 exoplanets planets

13
00:00:49,190 --> 00:00:46,719

around other stars but the ones that

14

00:00:51,590 --> 00:00:49,200

have been found to date fall into

15

00:00:54,069 --> 00:00:51,600

categories that are not very similar to

16

00:00:56,869 --> 00:00:54,079

the solar system with its sophisticated

17

00:00:59,670 --> 00:00:56,879

array of high resolution cameras the

18

00:01:02,630 --> 00:00:59,680

kepler spacecraft is designed to stare

19

00:01:05,590 --> 00:01:02,640

at one region of our milky way galaxy

20

00:01:08,789 --> 00:01:05,600

and capture images of any transits it

21

00:01:11,590 --> 00:01:08,799

sees a transit happens when a planet is

22

00:01:13,590 --> 00:01:11,600

passing in front of the face of its star

23

00:01:16,630 --> 00:01:13,600

it's basically the same idea as when you

24

00:01:18,550 --> 00:01:16,640

see a solar eclipse when that happens

25

00:01:21,030 --> 00:01:18,560

that's the moon passing in from the sun

26
00:01:23,030 --> 00:01:21,040
and having a dramatic decrease on the

27
00:01:25,429 --> 00:01:23,040
brightness that we see of the sun how

28
00:01:28,230 --> 00:01:25,439
much starlight is blocked by a planet's

29
00:01:30,630 --> 00:01:28,240
transit and how often that happens can

30
00:01:33,030 --> 00:01:30,640
tell astronomers the planet's size and

31
00:01:36,870 --> 00:01:33,040
orbit and whether it's in the habitable

32
00:01:39,749 --> 00:01:36,880
zone not too close nor too far away from

33
00:01:42,230 --> 00:01:39,759
its star what we want to determine is

34
00:01:44,550 --> 00:01:42,240
how rare or common is a system like the

35
00:01:46,310 --> 00:01:44,560
earth with a planet like earth in a zone

36
00:01:48,550 --> 00:01:46,320
where you could have liquid water and

37
00:01:50,950 --> 00:01:48,560
potentially life kepler will look

38
00:01:52,950 --> 00:01:50,960

continuously at well over one hundred

39

00:01:56,069 --> 00:01:52,960

thousand stars for at least three and a

40

00:01:58,389 --> 00:01:56,079

half years the data it produces should

41

00:02:01,429 --> 00:01:58,399

be a significant step in learning

42

00:02:04,149 --> 00:02:01,439

whether we've got company in our galaxy

43

00:02:06,469 --> 00:02:04,159

and tell astronomers where best to focus

44

00:02:08,869 --> 00:02:06,479

the search for neighbors it's like when

45

00:02:11,029 --> 00:02:08,879

galileo first turned his telescope to

46

00:02:12,630 --> 00:02:11,039

the heavens and everything changed the

47

00:02:14,229 --> 00:02:12,640

way we thought of ourselves and the

48

00:02:16,229 --> 00:02:14,239

universe changed and the same thing

49

00:02:17,910 --> 00:02:16,239

happened when the apollo astronauts took

50

00:02:19,190 --> 00:02:17,920

that picture of the earth when they were

51
00:02:20,630 --> 00:02:19,200
around the moon you know everyone on

52
00:02:22,309 --> 00:02:20,640
earth could see the earth differently

53
00:02:24,150 --> 00:02:22,319
from that moment on i think we'll have

54
00:02:25,750 --> 00:02:24,160
the same kind of revolution in the way

55
00:02:27,430 --> 00:02:25,760
we think of

56
00:02:29,910 --> 00:02:27,440
our solar system and our existence when

57
00:02:31,830 --> 00:02:29,920
we know how special or how common we

58
00:02:35,110 --> 00:02:31,840
really are for more on the kepler