
Illustration

1
00:00:05,349 --> 00:00:03,030
nasa's test mission just discovered its

2
00:00:08,150 --> 00:00:05,359
first circumbinary planet a world

3
00:00:11,350 --> 00:00:08,160
orbiting two stars instead of one

4
00:00:13,910 --> 00:00:11,360
named toi 1338-b it's nearly the size of

5
00:00:15,110 --> 00:00:13,920
saturn and orbits its stars every 95

6
00:00:16,790 --> 00:00:15,120
days

7
00:00:19,429 --> 00:00:16,800
the two stars orbit each other and

8
00:00:20,950 --> 00:00:19,439
consist of a small cool m dwarf and one

9
00:00:22,630 --> 00:00:20,960
much like the sun

10
00:00:24,950 --> 00:00:22,640
together they form what is called an

11
00:00:26,630 --> 00:00:24,960
eclipsing binary which means the stars

12
00:00:29,109 --> 00:00:26,640
regularly pass in front of each other

13
00:00:30,710 --> 00:00:29,119

from our point of view

14
00:00:32,389 --> 00:00:30,720
tess hunts for planets in these and

15
00:00:34,069 --> 00:00:32,399
other systems by looking for tiny

16
00:00:35,190 --> 00:00:34,079
regular dips in starlight called

17
00:00:40,229 --> 00:00:35,200
transits

18
00:00:41,510 --> 00:00:40,239
large star but spotting them in the data

19
00:00:43,510 --> 00:00:41,520
wasn't easy

20
00:00:45,270 --> 00:00:43,520
a high school intern examined hundreds

21
00:00:47,190 --> 00:00:45,280
of eclipsing binaries to search for

22
00:00:49,910 --> 00:00:47,200
planetary transits which can look

23
00:00:52,150 --> 00:00:49,920
similar to some of the eclipses

24
00:00:53,000 --> 00:00:52,160
ultimately he uncovered transits caused

25
00:00:54,790 --> 00:00:53,010
by the planet

26
00:00:57,910 --> 00:00:54,800
[Music]

27
00:01:00,069 --> 00:00:57,920
if you could orbit toi 1338-b you'd have

28
00:01:02,470 --> 00:01:00,079
a front row seat to see its suns eclipse

29
00:01:03,990 --> 00:01:02,480
each other every 15 days

30
00:01:06,710 --> 00:01:04,000
but the angle of the planet's orbit

31
00:01:09,350 --> 00:01:06,720
around the stars changes over time after

32
00:01:11,750 --> 00:01:09,360
2023 we won't see it pass in front of

33
00:01:13,510 --> 00:01:11,760
the stars for another 8 years

34
00:01:15,749 --> 00:01:13,520
tess will observe hundreds of thousands

35
00:01:19,109 --> 00:01:15,759
of eclipsing binaries so there may be