



1  
00:00:09,750 --> 00:00:07,349  
an alignment of planets presented by

2  
00:00:12,230 --> 00:00:09,760  
science at nasa

3  
00:00:14,390 --> 00:00:12,240  
note to sky watchers put on your winter

4  
00:00:16,710 --> 00:00:14,400  
coats what you're about to hear might

5  
00:00:18,310 --> 00:00:16,720  
make you feel an uncontrollable urge to

6  
00:00:19,830 --> 00:00:18,320  
dash outside

7  
00:00:22,310 --> 00:00:19,840  
the brightest planets in the solar

8  
00:00:24,790 --> 00:00:22,320  
system are lining up in the evening sky

9  
00:00:26,710 --> 00:00:24,800  
and you can see the formation some of it

10  
00:00:29,189 --> 00:00:26,720  
at least tonight

11  
00:00:30,950 --> 00:00:29,199  
go out at sunset and look west

12  
00:00:33,270 --> 00:00:30,960  
venus and jupiter pop out of the

13  
00:00:34,790 --> 00:00:33,280

twilight even before the sky fades

14

00:00:37,030 --> 00:00:34,800

completely black

15

00:00:40,310 --> 00:00:37,040

the two brilliant planets surrounded by

16

00:00:42,549 --> 00:00:40,320

evening blue is a beautiful sight

17

00:00:44,790 --> 00:00:42,559

if you go out at the same time tomorrow

18

00:00:46,630 --> 00:00:44,800

the view improves because venus and

19

00:00:49,190 --> 00:00:46,640

jupiter are converging

20

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

in mid-february they are about 20

21

00:00:54,549 --> 00:00:51,600

degrees apart by the end of the month

22

00:00:56,709 --> 00:00:54,559

the angle narrows to only 10 degrees

23

00:00:59,430 --> 00:00:56,719

so close that you can hide them together

24

00:01:01,830 --> 00:00:59,440

behind your outstretched palm

25

00:01:04,630 --> 00:01:01,840

their combined beauty grows each night

26  
00:01:06,630 --> 00:01:04,640  
as the distance between them shrinks

27  
00:01:09,510 --> 00:01:06,640  
a special night to look is saturday

28  
00:01:11,670 --> 00:01:09,520  
february 25th when the crescent moon

29  
00:01:14,550 --> 00:01:11,680  
moves in to form a slender heavenly

30  
00:01:15,990 --> 00:01:14,560  
triangle with venus jupiter and the moon

31  
00:01:19,350 --> 00:01:16,000  
as vertices

32  
00:01:21,190 --> 00:01:19,360  
one night later on sunday february 26th

33  
00:01:23,030 --> 00:01:21,200  
it happens again

34  
00:01:24,950 --> 00:01:23,040  
this arrangement will be visible all

35  
00:01:26,630 --> 00:01:24,960  
around the world from city and

36  
00:01:28,870 --> 00:01:26,640  
countryside alike

37  
00:01:31,270 --> 00:01:28,880  
the moon venus and jupiter are the

38  
00:01:33,190 --> 00:01:31,280

brightest objects in the night sky

39

00:01:36,710 --> 00:01:33,200

together they can shine through urban

40

00:01:38,630 --> 00:01:36,720

lights fog and even some clouds

41

00:01:41,990 --> 00:01:38,640

after hopping from venus to jupiter in

42

00:01:44,389 --> 00:01:42,000

late february the moon exits stage left

43

00:01:46,630 --> 00:01:44,399

but the show is far from over

44

00:01:49,350 --> 00:01:46,640

in march venus and jupiter continue

45

00:01:52,389 --> 00:01:49,360

their relentless convergence until on

46

00:01:55,429 --> 00:01:52,399

march 12th and 13th the duo lie only

47

00:01:57,749 --> 00:01:55,439

three degrees apart a spectacular double

48

00:01:59,429 --> 00:01:57,759

beacon in the sunset sky

49

00:02:02,870 --> 00:01:59,439

now you'll be able to hide them together

50

00:02:04,469 --> 00:02:02,880

behind a pair of outstretched fingertips

51  
00:02:06,230 --> 00:02:04,479  
there's something mesmerizing about

52  
00:02:09,109 --> 00:02:06,240  
stars and planets bunched together in

53  
00:02:10,949 --> 00:02:09,119  
this way and no you're not imagining

54  
00:02:12,869 --> 00:02:10,959  
things when it happens to you

55  
00:02:14,790 --> 00:02:12,879  
the phenomenon is based on the anatomy

56  
00:02:17,350 --> 00:02:14,800  
of the human eye

57  
00:02:20,470 --> 00:02:17,360  
your eye is a bit like a digital camera

58  
00:02:22,630 --> 00:02:20,480  
explains optometrist dr stewart hiroyasu

59  
00:02:24,550 --> 00:02:22,640  
of bishop california

60  
00:02:26,869 --> 00:02:24,560  
there's a lens in front to focus the

61  
00:02:28,550 --> 00:02:26,879  
light and a photo array behind the lens

62  
00:02:30,229 --> 00:02:28,560  
to capture the image

63  
00:02:33,110 --> 00:02:30,239

the photo array in your eye is called

64

00:02:35,030 --> 00:02:33,120

the retina it's made of rods and cones

65

00:02:36,550 --> 00:02:35,040

the organic equivalent of electronic

66

00:02:38,390 --> 00:02:36,560

pixels

67

00:02:40,150 --> 00:02:38,400

there's a tiny patch of tissue near the

68

00:02:41,990 --> 00:02:40,160

center of the retina where cones are

69

00:02:43,990 --> 00:02:42,000

extra densely packed

70

00:02:45,910 --> 00:02:44,000

this is called the fovea

71

00:02:48,550 --> 00:02:45,920

whatever you see with the phobia you see

72

00:02:51,030 --> 00:02:48,560

in high definition hiroyasu says

73

00:02:53,589 --> 00:02:51,040

the fovea is critical to reading driving

74

00:02:55,589 --> 00:02:53,599

watching television the fovea has the

75

00:02:57,830 --> 00:02:55,599

brain's attention

76  
00:02:59,670 --> 00:02:57,840  
in the weeks ahead the moon and planets

77  
00:03:01,670 --> 00:02:59,680  
will frequently appear near enough to

78  
00:03:03,750 --> 00:03:01,680  
each other for us to see them in high

79  
00:03:06,869 --> 00:03:03,760  
definition the field of view of the

80  
00:03:09,110 --> 00:03:06,879  
fovea is only about five degrees wide

81  
00:03:11,830 --> 00:03:09,120  
almost every night in march venus and

82  
00:03:14,309 --> 00:03:11,840  
jupiter will fit within that narrow cone

83  
00:03:16,550 --> 00:03:14,319  
and when they do presto it's

84  
00:03:19,350 --> 00:03:16,560  
spellbinding astronomy

85  
00:03:21,830 --> 00:03:19,360  
standing outdoors mesmerized by planets

86  
00:03:24,869 --> 00:03:21,840  
aligned in a late winter sunset you

87  
00:03:27,030 --> 00:03:24,879  
might just forget how cold you feel

88  
00:03:31,430 --> 00:03:27,040

bring a coat anyway