1
00:00:05,809 --> 00:00:02,110
[Music]

2
00:00:09,350 --> 00:00:05,819
what's up for June planets Buzz The

3
00:00:11,570 --> 00:00:09,360
Beehive your bright evening stars and

4
00:00:13,310 --> 00:00:11,580
how the summer solstice revealed the

5
00:00:16,070 --> 00:00:13,320
size of planet Earth

6
00:00:17,150 --> 00:00:16,080
on June 1st and 2nd Mars will be in the

7
00:00:18,769 --> 00:00:17,160
beehive

8
00:00:21,590 --> 00:00:18,779
the red planet passes through the

9
00:00:24,890 --> 00:00:21,600
Beehive cluster also known as precipe or

10
00:00:27,410 --> 00:00:24,900
m44 it's a well-known open cluster of

11
00:00:29,509 --> 00:00:27,420
stars located about 600 light years away

12
00:00:31,730 --> 00:00:29,519
in the constellation cancer of the crab

13
00:00:33,830 --> 00:00:31,740

the pairing will make for great viewing

14
00:00:35,750 --> 00:00:33,840
through binoculars or a small telescope

15
00:00:37,610 --> 00:00:35,760
with a sparkle of faint Stars

16
00:00:38,510 --> 00:00:37,620
surrounding the rust-colored disc of

17
00:00:43,069 --> 00:00:38,520
Mars

18
00:00:46,130 --> 00:00:43,079
together throughout the month in the

19
00:00:49,010 --> 00:00:46,140
Western sky following Sunset nearby is

20
00:00:51,049 --> 00:00:49,020
brilliant blue white star regulus the

21
00:00:53,630 --> 00:00:51,059
heart of Leo the Lion

22
00:00:56,389 --> 00:00:53,640
and on the 20th through the 22nd the

23
00:00:58,310 --> 00:00:56,399
Crescent Moon passes through making an

24
00:00:59,930 --> 00:00:58,320
especially lovely grouping at dusk on

25
00:01:02,209 --> 00:00:59,940
June 21st

26
00:01:04,789 --> 00:01:02,219
turning to the morning sky Saturn and

27
00:01:06,530 --> 00:01:04,799
Jupiter rise Before Dawn with the ringed

28
00:01:08,390 --> 00:01:06,540
planet Rising around midnight and

29
00:01:09,170 --> 00:01:08,400
leading brilliant Jupiter into the new

30
00:01:11,210 --> 00:01:09,180
day

31
00:01:13,429 --> 00:01:11,220
early risers will find them on the

32
00:01:14,450 --> 00:01:13,439
Eastern side of the sky before sunup all

33
00:01:16,850 --> 00:01:14,460
month long

34
00:01:20,210 --> 00:01:16,860
and you'll find Jupiter Rising with the

35
00:01:22,730 --> 00:01:20,220
Crescent Moon on June 14th

36
00:01:24,770 --> 00:01:22,740
facing Southward early on June evenings

37
00:01:27,830 --> 00:01:24,780
you'll notice two particularly Bright

38
00:01:30,109 --> 00:01:27,840

Stars high up in the sky they are spica

39
00:01:32,690 --> 00:01:30,119
and Arcturus

40
00:01:35,030 --> 00:01:32,700
blue white spica is the brightest star

41
00:01:37,789 --> 00:01:35,040
in the constellation Virgo the maiden

42
00:01:40,429 --> 00:01:37,799
it's located about 250 light years away

43
00:01:43,010 --> 00:01:40,439
and is actually two stars orbiting each

44
00:01:45,069 --> 00:01:43,020
other every four days at a distance far

45
00:01:48,410 --> 00:01:45,079
closer than Mercury orbits our sun

46
00:01:50,810 --> 00:01:48,420
orange giant Arcturus is the brightest

47
00:01:53,270 --> 00:01:50,820
star in the constellation booties the

48
00:01:54,530 --> 00:01:53,280
herdsmen it's the fourth brightest star

49
00:01:56,749 --> 00:01:54,540
in the sky

50
00:01:59,090 --> 00:01:56,759
it's much closer than spica at a

51
00:02:01,969 --> 00:01:59,100
distance of about 37 light years

52
00:02:04,190 --> 00:02:01,979
it's also quite an old star compared to

53
00:02:05,810 --> 00:02:04,200
our sun at an age of seven to eight

54
00:02:08,270 --> 00:02:05,820
billion years

55
00:02:11,630 --> 00:02:08,280
also on June evenings you'll notice the

56
00:02:13,910 --> 00:02:11,640
stars of the summer triangle Vega deneb

57
00:02:16,490 --> 00:02:13,920
and Altair rising in the couple of hours

58
00:02:18,229 --> 00:02:16,500
after dark and heralding the long warm

59
00:02:20,570 --> 00:02:18,239
nights of Northern summer

60
00:02:23,030 --> 00:02:20,580
the triangle Rises earlier each month as

61
00:02:25,970 --> 00:02:23,040
summer progresses

62
00:02:28,010 --> 00:02:25,980
June 21st is the summer solstice for the

63
00:02:30,170 --> 00:02:28,020

Northern Hemisphere and winter solstice

64
00:02:32,390 --> 00:02:30,180
in the southern hemisphere for the north

65
00:02:34,610 --> 00:02:32,400
it's the longest day of the year as the

66
00:02:36,290 --> 00:02:34,620
sun traces its highest longest path

67
00:02:38,869 --> 00:02:36,300
across the sky

68
00:02:40,250 --> 00:02:38,879
more hours of sunlight in addition to

69
00:02:42,410 --> 00:02:40,260
the more direct angle of the sun

70
00:02:44,390 --> 00:02:42,420
overhead translate into warmer

71
00:02:46,610 --> 00:02:44,400
summertime temperatures for our planet's

72
00:02:48,170 --> 00:02:46,620
summer hemisphere the situation is

73
00:02:49,970 --> 00:02:48,180
reversed for those living south of the

74
00:02:51,650 --> 00:02:49,980
Equator where it's the shortest day of

75
00:02:52,850 --> 00:02:51,660
the year during the cool months of

76
00:02:55,009 --> 00:02:52,860
winter

77
00:02:57,650 --> 00:02:55,019
the June summer solstice has another

78
00:03:00,530 --> 00:02:57,660
interesting claim to fame it helped the

79
00:03:02,449 --> 00:03:00,540
ancient Greeks 2200 years ago to

80
00:03:04,190 --> 00:03:02,459
understand the size of our planet with

81
00:03:07,190 --> 00:03:04,200
remarkable accuracy

82
00:03:08,869 --> 00:03:07,200
a scholar named eratosthenes noted the

83
00:03:11,089 --> 00:03:08,879
difference in the length of the Shadows

84
00:03:13,910 --> 00:03:11,099
cast by poles placed in the ground in

85
00:03:16,490 --> 00:03:13,920
Two Cities 800 kilometers apart at noon

86
00:03:18,649 --> 00:03:16,500
on the day of the solstice one cast no

87
00:03:21,229 --> 00:03:18,659
Shadow at all and the other cast a

88
00:03:23,030 --> 00:03:21,239

significant shadow by comparing the

89
00:03:25,670 --> 00:03:23,040
Shadows with the separation of the two

90
00:03:27,890 --> 00:03:25,680
cities eratosthenes deduced that Earth

91
00:03:30,949 --> 00:03:27,900
was about 40 000 kilometers in

92
00:03:33,350 --> 00:03:30,959
circumference which is the actual value

93
00:03:36,350 --> 00:03:33,360
he was also the first to calculate the

94
00:03:38,690 --> 00:03:36,360
tilt of Earth's axis which after all is

95
00:03:41,750 --> 00:03:38,700
what's responsible for the solstices and

96
00:03:45,949 --> 00:03:41,760
for the seasons themselves

97
00:03:48,110 --> 00:03:45,959
here are the phases of the moon for June

98
00:03:50,149 --> 00:03:48,120
stay up to date with all of NASA's

99
00:03:53,449 --> 00:03:50,159
missions to explore the solar system and

100
00:03:55,250 --> 00:03:53,459
Beyond at nasa.gov I'm Preston Dykes