1
00:00:04,130 --> 00:00:02,330
this is a Hubble Space Telescope image

2
00:00:07,280 --> 00:00:04,140
of the crowded core of the globular

3
00:00:09,560 --> 00:00:07,290
cluster Omega Centauri the brilliant

4
00:00:12,080 --> 00:00:09,570
colors of the stars are real they

5
00:00:14,030 --> 00:00:12,090
correspond to stellar temperatures they

6
00:00:17,240 --> 00:00:14,040
can also be used to trace stellar

7
00:00:20,029 --> 00:00:17,250
evolution astronomers like to know how

8
00:00:22,490 --> 00:00:20,039
blue the blue stars are and how red the

9
00:00:25,310 --> 00:00:22,500
red stars are so we'll first sort these

10
00:00:29,179 --> 00:00:25,320
stars out by color blue on the left and

11
00:00:31,370 --> 00:00:29,189
red on the right next we'll sort the

12
00:00:33,799 --> 00:00:31,380
stars according to brightness the

13
00:00:37,400 --> 00:00:33,809

brightest stars at the top and the faint

14
00:00:39,619 --> 00:00:37,410
stars at the bottom the final plot you

15
00:00:43,069 --> 00:00:39,629
see represents different stages of

16
00:00:44,959 --> 00:00:43,079
evolution of stars stars spend most of

17
00:00:47,600 --> 00:00:44,969
their lifetime burning on the main

18
00:00:50,319 --> 00:00:47,610
sequence when their fuel starts to run

19
00:00:53,630 --> 00:00:50,329
out they expand to become red giants

20
00:00:56,950 --> 00:00:53,640
they find a new source of fuel helium

21
00:01:00,459 --> 00:00:56,960
and burn blue hot but even that runs out

22
00:01:02,990 --> 00:01:00,469
they end up burning out as white dwarfs

23
00:01:05,600 --> 00:01:03,000
based on images for the hubble space

24
00:01:08,120 --> 00:01:05,610
telescope we've assembled a true plot