1
00:00:11,350 --> 00:00:09,509
now that you know that stars vary in

2
00:00:13,190 --> 00:00:11,360
abundance for every element we can look

3
00:00:15,669 --> 00:00:13,200
at how one element affects the chance of

4
00:00:17,510 --> 00:00:15,679
life in a planetary system the habitable

5
00:00:19,990 --> 00:00:17,520
zone is the region around a star that

6
00:00:22,230 --> 00:00:20,000
can support liquid water we know that as

7
00:00:25,029 --> 00:00:22,240
stars age this region moves away from

8
00:00:26,630 --> 00:00:25,039
the star therefore any orbiting planets

9
00:00:27,910 --> 00:00:26,640
only have a certain time to remain

10
00:00:29,669 --> 00:00:27,920
habitable

11
00:00:31,910 --> 00:00:29,679
recent calculations have shown that

12
00:00:33,830 --> 00:00:31,920
variations in oxygen alone greatly

13
00:00:35,270 --> 00:00:33,840

affect the distance and lifetimes of

14
00:00:37,750 --> 00:00:35,280
habitable zones

15
00:00:39,670 --> 00:00:37,760
for example a star with half the oxygen

16
00:00:41,590 --> 00:00:39,680
of our sun would have a habitable zone

17
00:00:43,430 --> 00:00:41,600
at a greater distance and would last

18
00:00:45,830 --> 00:00:43,440
about three and a half billion years

19
00:00:47,430 --> 00:00:45,840
whereas if it had twice the oxygen it

20
00:00:48,869 --> 00:00:47,440
would be closer and last about nine

21
00:00:50,790 --> 00:00:48,879
billion years

22
00:00:52,470 --> 00:00:50,800
as well as determining the habitability