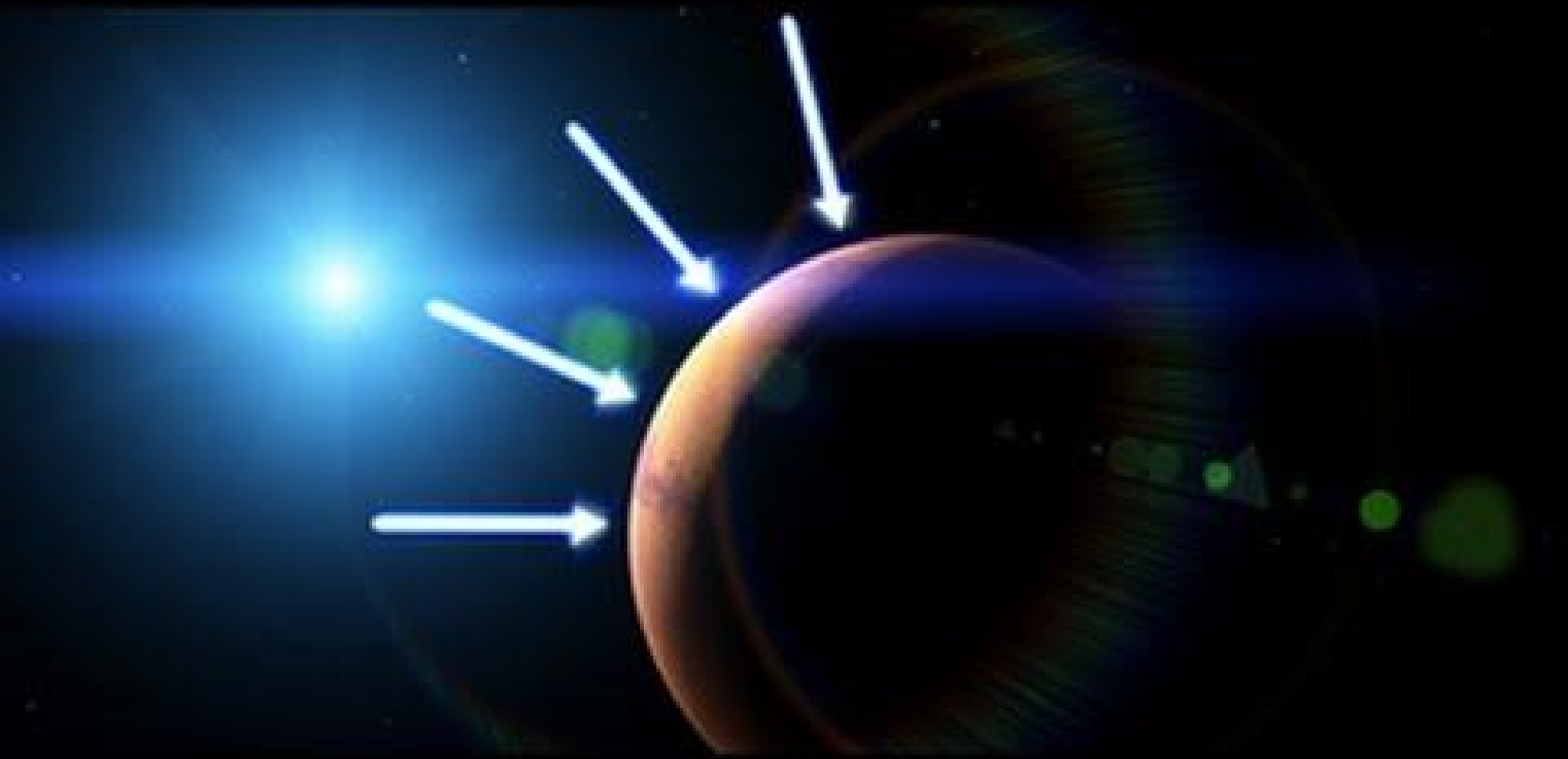

1
00:00:00,030 --> 00:00:12,480
[music]

2
00:00:12,500 --> 00:00:17,980
When you look at Mars today, it appears to be a barren, dusty world with only a very thin atmosphere.

3
00:00:18,000 --> 00:00:21,980
However, some scientists think that Mars may have once had a much thicker atmosphere,

4
00:00:22,000 --> 00:00:27,200
maybe even one more like ours on Earth. So how does a planet lose so much of its atmosphere?

5
00:00:27,220 --> 00:00:31,780
NASA's MAVEN spacecraft will help give us clearer answers when it studies Mars's upper atmosphere,

6
00:00:31,800 --> 00:00:35,630
but scientists think that several processes may have had an impact over billions of years.

7
00:00:35,650 --> 00:00:39,970
One way that an atmosphere can be lost to space is through a series of what are called Neutral Processes,

8
00:00:39,990 --> 00:00:43,680
which are processes that involve neutral particles rather than charged particles.

9
00:00:43,700 --> 00:00:48,400
On Mars for example, atoms and molecules of hydrogen gas can be found in the upper atmosphere

10
00:00:48,420 --> 00:00:54,480
and they often collide with each other as they make their way around. For the most part, the molecules are still

11
00:00:54,500 --> 00:00:58,580
However, if a fast-moving molecule collides with another molecule at the right angle,

12
00:00:58,600 --> 00:01:03,030
the molecule may have just enough speed to leave the atmosphere and be lost to space.

13
00:01:03,050 --> 00:01:10,220

As this process continues over billions of years, it, along with many other processes, can contribute to the disa

14
00:01:10,240 --> 00:01:17,230
And since the hydrogen in the atmosphere ultimately comes from water in the lower atmosphere, it may also c

15
00:01:17,250 --> 00:01:21,110
In the end, this cumulative effect could have transformed Mars from a bluer, cloudier planet