1
00:00:00,010 --> 00:00:12,130
[music]

2
00:00:12,150 --> 00:00:19,980
When you take a look at Mars, you probably wouldn't think that it looks like a very nice place to live: it's dry, it's

3
00:00:20,000 --> 00:00:23,980
But some scientists think that Mars may have once looked like a much nicer place to live,

4
00:00:24,000 --> 00:00:29,180
with a thicker atmosphere, cloudy skies, and possibly even liquid water flowing over the surface.

5
00:00:29,200 --> 00:00:33,330
So how do you go from something like this...to something like this?

6
00:00:33,350 --> 00:00:41,330
NASA's MAVEN spacecraft will give us a clearer idea of how Mars lost its atmosphere, and scientists think that

7
00:00:41,350 --> 00:00:48,030
One of these processes is called Sputtering, where atoms are knocked away from the atmosphere due to impa

8
00:00:48,050 --> 00:00:52,130
In our solar system, the Sun constantly emits high-energy photons.

9
00:00:52,150 --> 00:00:59,350
When one of these photons enters the atmosphere of a planet, it can crash into a molecule, knocking loose an

10
00:00:59,370 --> 00:01:05,380
Ions by themselves don't do much, but when a magnetic field is nearby they'll spin around the field.

11
00:01:05,400 --> 00:01:10,680
Conveniently, the Sun generates a giant magnetic field that is carried by the solar wind.

12
00:01:10,700 --> 00:01:15,230
As the magnetic field sweeps past the planet, some ions will get carried away.

13
00:01:15,250 --> 00:01:20,640

Other ions, depending on where they form, won't get carried away but will hit the top of the atmosphere.

14
00:01:20,660 --> 00:01:26,500
These ions can then crash into other molecules and fling atoms everywhere, like a cue ball in a game of pool.

15
00:01:26,520 --> 00:01:31,730
Some of these atoms can be knocked, or sputtered, into space, causing atmospheric loss,

16
00:01:31,750 --> 00:01:35,080
and over billions of years this could have caused quite a bit of change,

17
00:01:35,100 --> 00:01:40,230
especially since the solar wind may have been more intense early in our solar system's history.

18
00:01:40,250 --> 00:01:44,700
Scientists think that all of this may have caused Mars to gradually transform

19
00:01:44,720 --> 00:01:49,780
from what may have been a very nice place to live, into the dry, dusty world we know today,