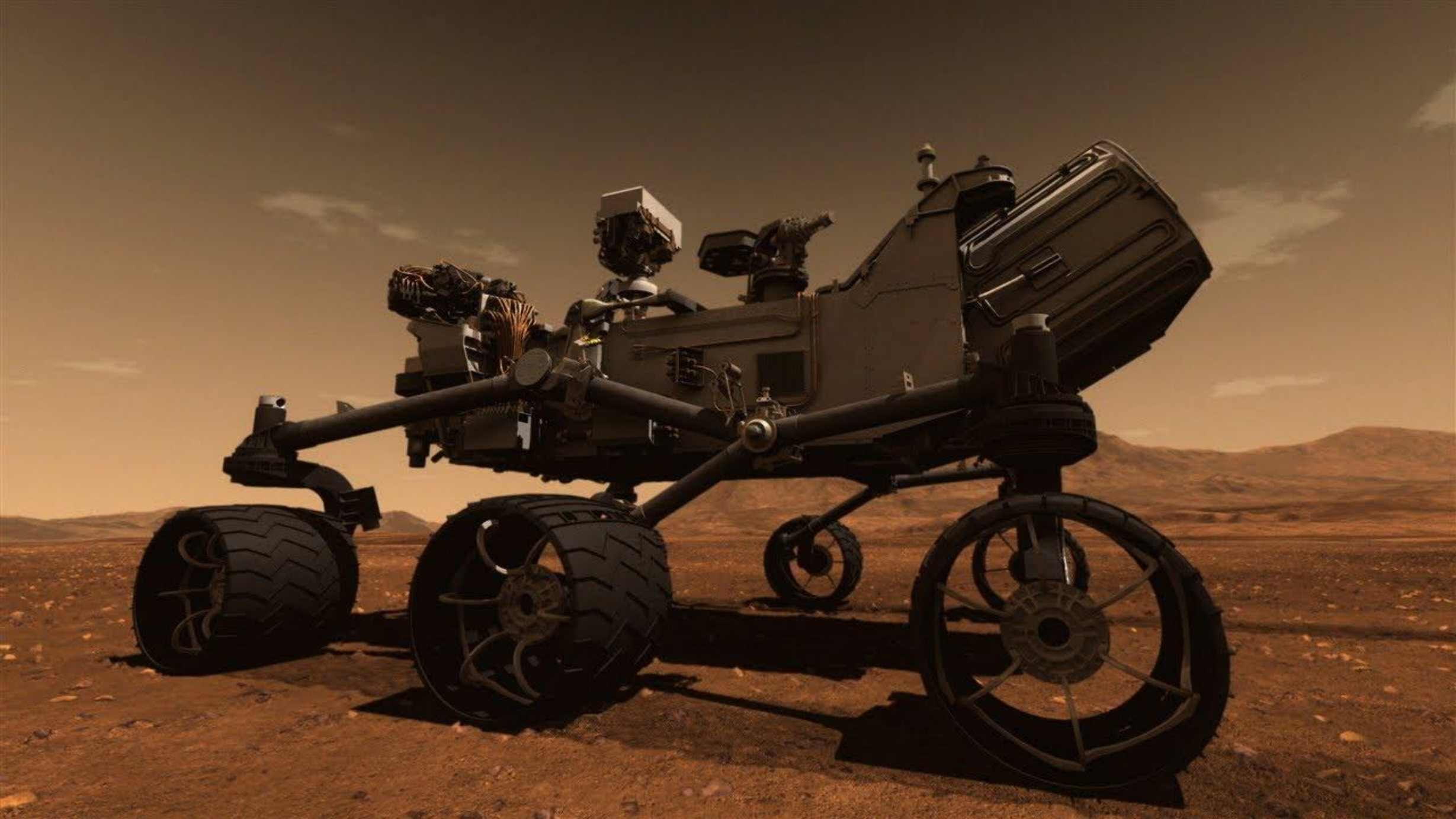

1
00:00:00,010 --> 00:00:04,000
[Music]

2
00:00:04,020 --> 00:00:13,530
Mahaffy: SAM is a suite of instruments that is one of ten investigations on the Mars Science Laboratory, named

3
00:00:13,550 --> 00:00:19,060
I'm the Principal Investigator on SAM, the Sample Analysis at Mars experiment.

4
00:00:19,080 --> 00:00:27,780
Eigenbrode: MSL will collect a sample, either drill it or it will scoop up a powdered sample of some sort, and it w

5
00:00:27,800 --> 00:00:32,180
And then it heats it up really hot and produces a whole bunch of gases that come out of that rock.

6
00:00:32,200 --> 00:00:42,340
Mahaffy: SAM has three different instruments glued together by a system that moves sample around and move

7
00:00:42,360 --> 00:00:52,580
Eigenbrode: The isotopes of those gases will tell us about the processes that formed them. In particular, it help

8
00:00:52,600 --> 00:01:01,730
And that is a big secret of Mars, where are those organic molecules and where did they come from? So SAM w

9
00:01:01,750 --> 00:01:07,380
Conrad: On Earth we have the luxury of putting in sample after sample into each laboratory apparatus.

10
00:01:07,400 --> 00:01:14,220
Once you go to another planet, every dot of every electron that you use is measured.

11
00:01:14,240 --> 00:01:25,030
So one way in which SAM differs from earthbound instrunemts is that it is very, very sensitive just like instrume

12
00:01:25,050 --> 00:01:29,980
but it's realitively tiny, it's about the size of a microwave oven.

13
00:01:30,000 --> 00:01:36,680

Mars is a puzzle: we don't know whether life ever arose on Mars, we don't know if there is life there now.

14
00:01:36,700 --> 00:01:45,700
But what we can measure is what the potential is for habitability on Mars, and we can do this by looking at the