



1  
00:00:00,000 --> 00:00:03,000  
(music)

2  
00:00:03,000 --> 00:00:06,000  
How do rovers drive on Mars?

3  
00:00:06,000 --> 00:00:09,000  
First of all, there's no joystick for driving a Mars rover.

4  
00:00:09,000 --> 00:00:13,000  
Before a rover 'hits the road,' engineers send computer commands overnight,

5  
00:00:13,000 --> 00:00:15,000  
telling it where to go the next day.

6  
00:00:15,000 --> 00:00:19,000  
Depending on how tricky the terrain is, rover drivers have two options.

7  
00:00:19,000 --> 00:00:25,000  
They can send a string of specific commands like: 'Drive forward five meters; then turn right 90 degrees.'

8  
00:00:25,000 --> 00:00:30,000  
The rover turns its wheels enough times to add up to five meters, and then turns in place.

9  
00:00:30,000 --> 00:00:33,000  
Or if it looks safe, they can let the rover think on its own.

10  
00:00:33,000 --> 00:00:38,000  
They write commands like: 'See that rock over there? Find your way there safely.'

11  
00:00:38,000 --> 00:00:40,000  
Then, using two cameras like human eyes,

12  
00:00:40,000 --> 00:00:45,000  
the rover gets a 3D view of hazards such as large rocks and steep slopes.

13  
00:00:45,000 --> 00:00:49,000

After mapping the danger zones, it plots the safest route to avoid them.

14

00:00:49,000 --> 00:00:52,000

Either way, did the rover complete its drive as planned?