



1
00:00:08,020 --> 00:00:12,010

As the moon orbits the Earth it occasionally passes through the Earth's shadow

2
00:00:12,030 --> 00:00:16,010

resulting in a spectacular change in the moons appearance for a short time. This event is called

3
00:00:16,030 --> 00:00:20,020

a lunar eclipse and it happens at least twice a year providing a rare show that's worth staying

4
00:00:20,040 --> 00:00:24,030

awake for. But what would a lunar eclipse look like if you were on the moon?

5
00:00:24,050 --> 00:00:28,040

From that perspective you would actually be viewing a solar eclipse with the Earth blocking the Sun for a short

6
00:00:28,060 --> 00:00:32,050

period of time. The view would be spectacular but there's more to it than that.

7
00:00:32,070 --> 00:00:36,140

Having such a large scale lights out on the moon give scientists a unique opportunity

8
00:00:36,160 --> 00:00:40,190

to study the moons surface and NASA's lunar reconnaissance orbiter is in a position

9
00:00:40,210 --> 00:00:44,250

just that. So what exactly does LRO plan to study?

10
00:00:44,270 --> 00:00:48,280

When the Sun is obscured the moon cools down but not every area cools at the same rate.

11
00:00:48,300 --> 00:00:52,310

Rough areas of the moon, with large rocks and boulders cool down more slowly than areas

12
00:00:52,330 --> 00:00:56,340

of fewer large rocks. By measuring the temperature of the moon as it cools

13
00:00:56,360 --> 00:01:00,370

scientists can identify which areas are rougher than others. Earth based telescopes

14

00:01:00,390 --> 00:01:03,930

have been doing something like this for years but there so far away that its hard to get a good view.

15

00:01:03,950 --> 00:01:07,980

LRO's Diviner instrument on the other hand can measure temperature at an extremely

16

00:01:08,000 --> 00:01:12,030

high resolution giving scientists a first ever up close measurement of this kind.

17

00:01:12,050 --> 00:01:16,100

By taking these measurements scientists can infer the size and density of moon rocks

18

00:01:16,120 --> 00:01:20,120

on a very small scale, teaching them new things about the moons surface. And