



**WE ARE  
CONCERNED  
ESPECIALLY WITH  
CONTAMINATING  
MARS  
AS WE SEARCH  
FOR LIFE**

1  
00:00:08,549 --> 00:00:01,670  
we're concerned especially about

2  
00:00:13,749 --> 00:00:11,030  
planetary protection is about the

3  
00:00:16,630 --> 00:00:13,759  
concern for biological contamination of

4  
00:00:17,830 --> 00:00:16,640  
celestial bodies planets like the earth

5  
00:00:20,150 --> 00:00:17,840  
and mars

6  
00:00:22,630 --> 00:00:20,160  
and in other bodies like the moon and

7  
00:00:26,230 --> 00:00:22,640  
asteroids microbes are single-celled

8  
00:00:29,509 --> 00:00:26,240  
organisms like bacteria and fungi

9  
00:00:31,589 --> 00:00:29,519  
on earth microbes have adapted to live

10  
00:00:32,549 --> 00:00:31,599  
in almost every environment we've looked

11  
00:00:34,870 --> 00:00:32,559  
at

12  
00:00:37,350 --> 00:00:34,880  
microbe is not a bad thing so without

13  
00:00:39,270 --> 00:00:37,360

microbes we cannot live

14

00:00:43,070 --> 00:00:39,280

in the grand scheme of things

15

00:00:44,549 --> 00:00:43,080

90 plus percent are really good microbes

16

00:00:46,069 --> 00:00:44,559

[Music]

17

00:00:48,310 --> 00:00:46,079

the microbial environment is an

18

00:00:50,790 --> 00:00:48,320

important part of human health

19

00:00:52,790 --> 00:00:50,800

we need certain microbes to survive and

20

00:00:53,910 --> 00:00:52,800

of course we know some microbes cause

21

00:00:56,310 --> 00:00:53,920

disease

22

00:00:58,869 --> 00:00:56,320

so we want to understand exactly what's

23

00:01:00,229 --> 00:00:58,879

happening on the space station so we can

24

00:01:02,389 --> 00:01:00,239

plan for

25

00:01:03,060 --> 00:01:02,399

our longer journeys to the moon and to

26

00:01:06,230 --> 00:01:03,070

mars

27

00:01:08,469 --> 00:01:06,240

[Music]

28

00:01:10,870 --> 00:01:08,479

when you are exploring other planets we

29

00:01:13,429 --> 00:01:10,880

need to leave the other planet as

30

00:01:14,789 --> 00:01:13,439

pristine as possible without

31

00:01:18,550 --> 00:01:14,799

contaminating

32

00:01:19,830 --> 00:01:18,560

microbes mars which is red become green

33

00:01:22,310 --> 00:01:19,840

we're concerned about forward

34

00:01:25,350 --> 00:01:22,320

contamination which is where we take

35

00:01:27,350 --> 00:01:25,360

life on earth and contaminate other

36

00:01:29,190 --> 00:01:27,360

bodies and we're concerned about if