



1
00:00:00,130 --> 00:00:05,340
I am sitting here with Abby Allwood she's
an astrobiologists and we are going to talk

2
00:00:05,340 --> 00:00:06,340
exploring Mars.

3
00:00:06,340 --> 00:00:07,340
[Music]

4
00:00:07,340 --> 00:00:11,220
So first of all tell me what exactly an astrobiologists
does?

5
00:00:11,220 --> 00:00:16,059
In particular the type of astrobiology I do
is looking for signs of ancient microbial

6
00:00:16,059 --> 00:00:17,059
life .

7
00:00:17,059 --> 00:00:20,859
So how do we look for ancient signs of life
on Mars?

8
00:00:20,859 --> 00:00:26,540
Oh the clues are the rocks, so they are going
to be in the rocks, so you have to go in a

9
00:00:26,540 --> 00:00:27,550
planet like Mars

10
00:00:27,550 --> 00:00:33,300
or looking at the early rock record on earth
we want to go and find places as recorded

11
00:00:33,300 --> 00:00:38,750
in the in the rock record look for clues that
there was a habitable environment in the past

12
00:00:38,750 --> 00:00:42,330
for example you need water for life to exist

13
00:00:42,330 --> 00:00:46,890
so we look for clues in the in the chemistry
or the structure of the rocks and say this

14
00:00:46,890 --> 00:00:53,760
is a wet environment and we take instrument
second look for chemical and organic and textual

15
00:00:53,760 --> 00:00:57,540
clues in the rocks the microbial life may
have once lived there in the past

16
00:00:57,540 --> 00:01:01,579
You've got an instrument on the Mars 2020
Rover so why don't you tell me a little

17
00:01:01,579 --> 00:01:05,489
bit about what your instrument is and what
exactly it's going to do

18
00:01:05,489 --> 00:01:11,670
So my instrument is PIXL which stands for
Planetary Instrument for X-Ray lithochemistry

19
00:01:11,670 --> 00:01:17,399
simple means it uses x-rays to look at the
chemistry of rocks and how that relates to

20
00:01:17,399 --> 00:01:24,159
life is so if there were microbes in the past
they can leave in past environments where

21
00:01:24,159 --> 00:01:31,030
rocks were being formed they can leave chemical
clues in the rocks that they once existed

22
00:01:31,030 --> 00:01:35,540
So we can detect those but also more broadly
if you want to narrow the search down from

23
00:01:35,540 --> 00:01:38,100
just right now lucky do approach is there
life here?

24
00:01:38,100 --> 00:01:39,319
is there life there?

25
00:01:39,319 --> 00:01:44,869
You use the clues in the rock record to guide
you to where the most habitable environment

26
00:01:44,869 --> 00:01:51,759
were and also where the subsequent conditions
that the rocks saw are going to preserve the

27
00:01:51,759 --> 00:01:54,109
fossils , preserve the chemicals.

28
00:01:54,109 --> 00:01:59,880
So it's often said that Spirit and Opportunity
are geologist, MSL is a Chemist or Geo-Chemist

29
00:01:59,880 --> 00:02:01,079
what is 2020?

30
00:02:01,079 --> 00:02:10,140
2020 is all of the above , 2020 needs to be
a geologist to study the rocks in the landing,

31
00:02:10,140 --> 00:02:14,950
landing sight area that we're going to collect
samples from and it's also going to be a

32
00:02:14,950 --> 00:02:19,640
chemist to analysis the chemistry of those

rocks it's going to use all of the instruments

33

00:02:19,640 --> 00:02:25,530

on board to try and interpret the geologic
clues, the chemical clues of the are to try